



TEC-IT

TBarCode Office

Barcode Add-In for Microsoft® Office

Version 11.1

User Manual

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2 Disclaimer

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3 Introduction

3.1 What is TBarCode Office?

TBarCode Office is a barcode add-in which integrates seamlessly into Microsoft® Word® and Microsoft® Excel®.

Supported Office versions: Microsoft Office 2007, 2010, 2013, 2016, 2019, 2021 and 365.

This add-in allows you to insert all barcode symbologies into Word documents and Excel workbooks with just a few clicks. In addition, **TBarCode Office** supports creation of mailings, bar-code labels and serial letters by embedding mail merge fields¹ directly into bar codes.

Thanks to the **intuitive user interface** this barcode add-in is very easy to use. Programming skills are not needed.

TBarCode Office supports more than 100 different barcode types. Among them are linear and 2D symbologies like Code128, Code39, GS1/EAN, UPC, GS1/EAN-128, Data Matrix, QR Code®, PDF417, Aztec Code and GS1 DataBar.

The generated barcodes can be printed with all printers. The bar codes are created in the highest possible quality. Additional printer extensions or barcode fonts are not required.

For bar code creation, **TBarCode Office** embeds EMF pictures. Note that we recommend that you use **TBarCode SDK** if your focus is on VBA or Access programming.

3.2 Scope of this Document

This document concentrates on the use of **TBarCode Office**.

The first part of this document explains how to insert barcodes in normal documents and spreadsheets as well as in mailings or serial letters. The integration of barcodes by using the mailings feature is explained with an example. Then we concentrate on the user interface of the **TBarCode Office** Add-In. For this, we introduce the **TBarCode Office** panel for Word and Excel in detail.

The second part of this document describes all available barcode properties, which can be adjusted in the property dialog.

3.3 Restrictions of the Demo Version

In the demo version, the barcodes will be drawn with a demo-hint. That means that the word "Demo" or the phrase "www.tec-it.com" is drawn partially over the barcode. There is no other functional limitation in the demo version. In most cases, the demo-hint does not influence the readability of the barcode in a negative way.

- ▶ In some cases, you may want to test the product without Demo imprint. **To obtain a free temporary license key, contact sales@tec-it.com.**
- ▶ For enabling the full-featured version (without the demo hints), you can obtain a license key from TEC-IT: www.tec-it.com/order/
- ▶ For more information on licensing **TBarCode Office**, please refer to chapter 8.

¹ For more information on mailings, please refer to chapter 6.2.

4 Installation

4.1 Requirements

TBarCode Office can be used with the following Microsoft Office versions:

- Microsoft Office 2007, Microsoft Office 2010, Microsoft Office 2013
- Microsoft Office 2016 / 2019 / 2021 / 365 ²

TBarCode Office can be used with the following operating systems:

- Windows 7 with Service Pack 1 / Windows 8 / Windows 10 / Windows 11
- Windows Server 2008 with Service Pack 2 / Windows Server 2008 R2 SP1
- Windows Server 2012 / 2012 R2 / 2016 / 2019 / 2022

4.1.1 Dependencies

The following dependencies must be installed:

- MSVC Runtime Libraries (Visual Studio 2015-2022) ³
- Visual Studio 2010 Tools for Office Runtime (VSTO 4.0) ⁴
- Microsoft .NET Framework Runtime 4.6.2 or higher (download [here](#)).

4.2 Download and Setup

Download **TBarCode Office 11** from www.tec-it.com/Download ► *TBarCode Office* and execute the setup application.

► For installing **TBarCode Office** administrative rights are required!

During setup, you can decide if you want to install the add-in only for the current user or for all users (default for Office > 2007). If you want to change this option, click in the start page.

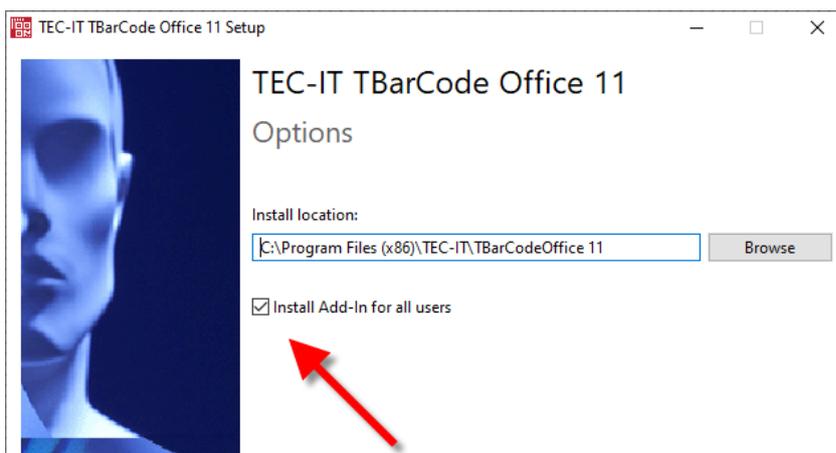


Figure 1: Register Add-In for All Users

If the add-in is not visible, we recommend repeating the installation without the “All Users” option.

² The number of bar codes and bar code operations (insert, redraw) are limited by system resource consumption.

³ The latest Visual C++ Redistributable is automatically downloaded and installed by the TBarCode Office setup.

⁴ The VSTO 4.0 Runtime is included in the TBarCode Office setup.

5 User Interface

This chapter will give you an overview of the **TBarCode Office** user interface.

5.1 TBarCode Office for Microsoft Word

5.1.1 Activating the Barcode Panel

To activate or open the task pane, switch to the *Add-Ins tab* ① and then click on the panel button ②. The **TBarCode Office** panel ③ appears immediately on the right side of the document.

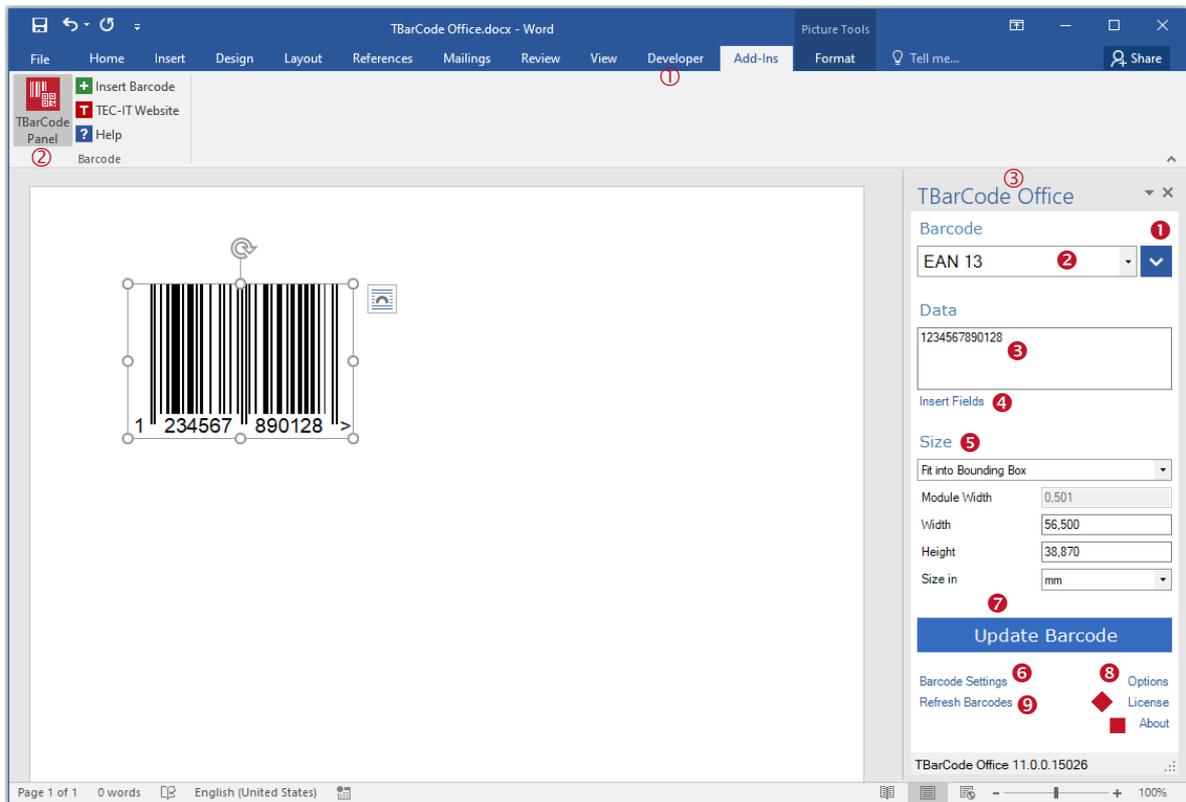


Figure 2: TBarCode Office User Interface in Word

5.1.2 TBarCode Office Panel

In the **TBarCode Office** panel ③ you make all your adjustments for the barcode to be inserted.

Options	Description
①	Opens a list of barcode templates. With these pre-defined settings, it is easy to generate barcodes, which comply with common barcode standards. The settings from the template are applied to the barcode. See section 5.3.1 Templates.
② Barcode	Select the barcode type from the menu list.
③ Data	Enter the data for the barcode in the field <i>Barcode Data</i> .
④ Insert Fields	Here you can insert mail merge fields and document properties into the barcode data. For mail merge fields see section 6.2.
⑤ Size	Customize the appearance of the barcode using the <i>Module Width</i> , <i>Width</i> and <i>Height</i> fields. By clicking on the measure unit next to <i>Size in</i> you can toggle between millimeters and mils (a mil is one thousandth of an inch: 0.0254 millimeters).
⑥ Barcode Settings	Access advanced bar code parameters like bar-width reduction, font or color settings. For further information, see chapter 7.

<ul style="list-style-type: none"> 7 Insert Barcode 7 Update Barcode 	<p>The button <i>Insert Barcode</i> inserts a barcode at the current cursor position.</p> <p>This button changes to <i>Update Barcode</i> if a barcode is selected.</p> <p>Clipboard: You can copy an image of the actual bar code into the clipboard by holding down the <i>Shift</i> key while clicking <i>Insert Barcode</i>. This function copies the bar code as high-resolution graphics (EMF) to the Clipboard.</p>
8 Options	<i>Options</i> allows you to configure specific Add-In options, for more information, see section 6.2.
9 Refresh Barcodes	Updates or recreates all bar codes in the document. Especially useful for updating dynamic values from placeholders or to remove the Demo imprint after licensing.
◆ License	The link <i>License</i> opens a dialog for entering license data (see chapter 8).
■ About	<i>About</i> displays the product version and copyright information.

Table 1: TBarCode Office Panel in Word

5.1.3 Options

In the options dialog you can adjust specific settings for the Word Add-In.

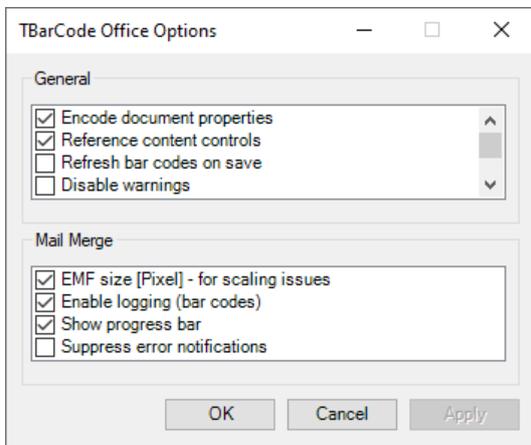


Figure 3: Options Word Add-In

General Options	Description
Encode document properties	This option controls if placeholders for document properties like [!Author] should be resolved. The placeholders are updated when editing the bar code and before printing. If you encounter problems or you do not use document properties at all, you can disable this option.
Reference content controls	This option controls if placeholders for content controls (e.g. [!TagID]) and form fields should be resolved. The placeholders are updated when editing the bar code and before printing. If you encounter problems or do not use content controls or form fields, you can disable this option.
Refresh bar codes on save	The add-in updates EMF barcodes immediately before printing. This option also updates barcodes when the document is saved. Note that the barcodes are only updated if the data has changed.
Disable warnings	Enable this option if you do not want to receive warnings (OLE DB connection, bar code resizing, low system resources, etc.).
Check online for updates	This option checks online for updates once the TBarCode Panel is opened. If a newer add-in version is detected on the update server, you will see a notification at the bottom of the panel. Disable this option if you don't want to check for updates or you don't have internet connectivity. If the update check fails after a specific number of retries, this option disables itself automatically.
Deactivate events	TBarCode Office uses application events to interact with Word and the actual user selection. If this causes problems or a VBA program (or add-in) interferes with these events, you can disable event integration. If you do this, you lose mail merge functionality and task pane update when you select a barcode. In addition, placeholders for variable data (such as document properties) are no longer resolved before printing. Basic functions such as inserting a bar code and changing bar code properties are still supported.

Table 2: General Options Word Add-In

Mail Merge Options	Description
EMF size [Pixel]	If enabled, the bar code size is applied in [Pixels] with screen resolution (~ 96 dpi). If disabled, the bar code size is applied in [Points] with 72 dpi. <ul style="list-style-type: none">• If you see enlarged bar codes, turn off this option.• If you see downscaled bar codes, turn it on (default).
Enable logging for mail merge	During a mail merge, the bar code generator can log bar code errors and resizing events (e.g. barcode size was changed because of data content). The log is displayed after the mail merge. It helps you to determine the reason for errors or layout changes. You can localize the record that created the wrong or missing bar code, correct the data and print this record again.
Show progress bar	Enable this option to show a progress during a mail merge. Beware that the progress bar only shows up when you have bar codes in your document.
Suppress error notifications	Enable this option if you do not want to receive popup notifications during a mail merge. This option also disables warnings about low system resources. Sometimes popups disturb the correct mail merge processing (barcodes not deleted, barcodes on wrong positions). In that case, this option can help. Errors can still be viewed in the log after the mail merge finished.

Table 3: Mail Merge Options Word Add-In



5.2 TBarcode Office for Microsoft Excel

5.2.1 Activating the Barcode Panel

To activate or open the task pane, switch to the *Add-Ins tab* ① and then click on the panel button ②. The **TBarcode Office** panel ③ appears immediately on the right side of the document.

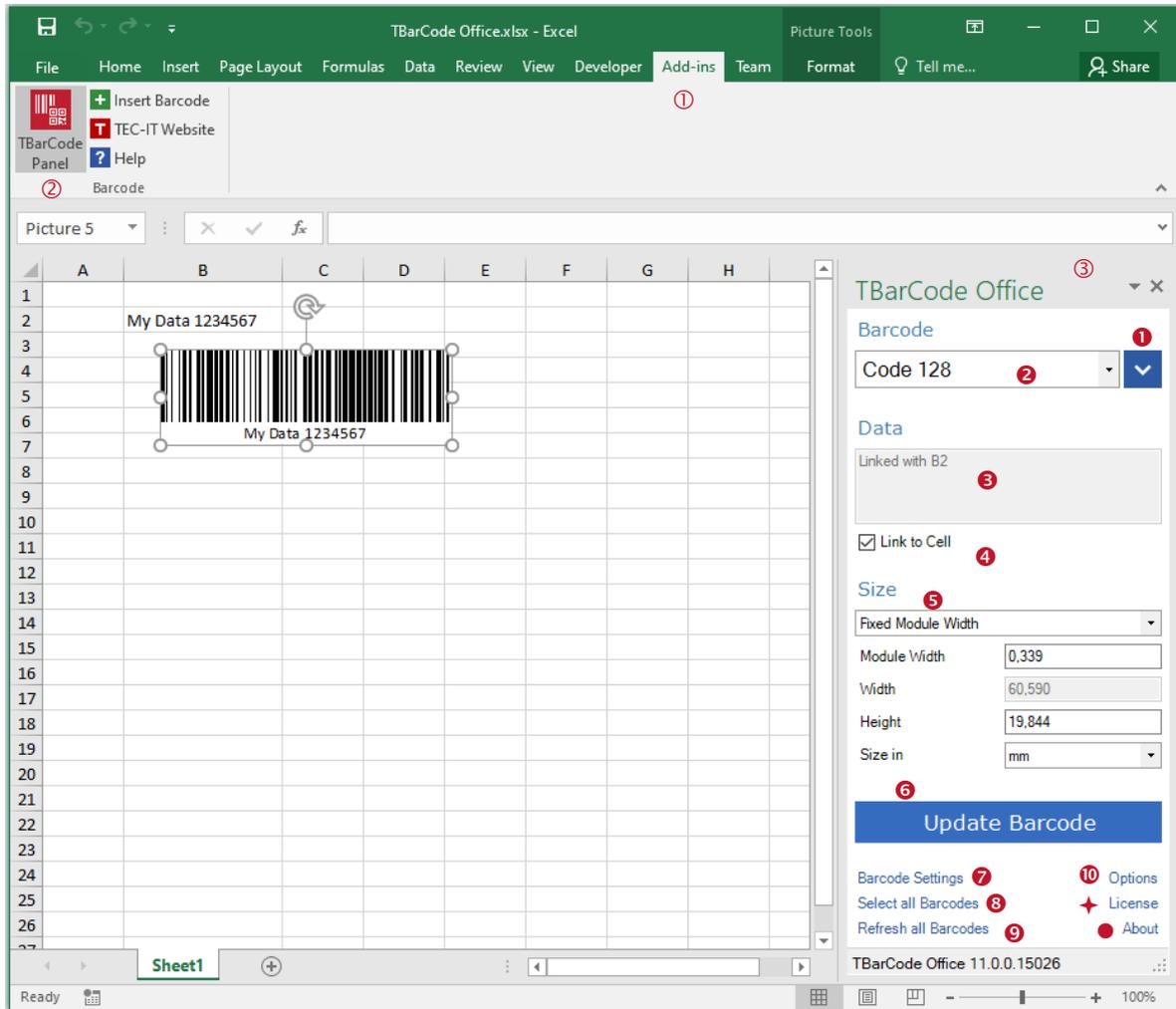


Figure 4: TBarcode Office User Interface in Excel

5.2.2 TBarcode Office Panel

In the **TBarcode Office** panel ③ you make all your adjustments for the barcode to be encoded.

Options	Description
①	Opens a list of barcode templates. With these pre-defined settings, it is easy to generate barcodes, which comply with common barcode standards. The settings from the template are applied to the barcode. See section 5.3.1 Templates.
② Barcode	Select the required barcode type from the list.
③ Data	Enter the data for the barcode in the field <i>Data</i> . Whenever you click into a cell of your spreadsheet the data of this cell is automatically copied into this field. Leading and trailing white space characters (newline, spaces) are removed ⁵ .
④ Link to Cell	The check box <i>Link to Cell</i> allows you to link a barcode with a specific cell. This is useful to create dynamic bar codes, which update whenever the content of the linked cell is changed.

⁵ White space removal is adjustable in the bar code settings dialog.

5	Size	Adjust the appearance of the barcode by using the fields <i>Module Width</i> , <i>Width</i> , and <i>Height</i> . By clicking on the measure unit next to <i>Size in</i> you can toggle between millimeters and mils (a mil is 1/1000 of an inch = 0.0254 millimeters). Choose the suitable sizing mode: <ul style="list-style-type: none"> ▪ <i>Fit into Bounding Box</i>: The barcode is always drawn in the size of the bounding box. The module width adapts to the amount of data to be encoded. ▪ <i>Fixed Module Width</i>: The size of the barcode depends on the amount of data to be encoded, the module width is fixed. ▪ <i>Fit to Selected Cell</i>: The size of the barcode is adjusted to the size of the spreadsheet cell. See the add-in options if you want to <i>Center in Cell</i>.
6	Insert Barcode	The button <i>Insert Barcode</i> inserts a barcode at the current position in your spreadsheet. This button changes to <i>Update Barcode</i> if a barcode is selected ⁶ .
7	Barcode Settings	<i>Barcode Settings</i> is used for adjusting more advanced parameters like bar-width reduction, font or color settings. For further information, see chapter 7.
8	Select all Barcodes	The link <i>Select all Barcodes</i> selects all barcodes in the worksheet.
9	Refresh all Barcodes	Redraws all barcodes in the worksheet, reapplies linked cell content and resizes bar codes with fixed module width. Note that EMF pictures are recreated only if the bar code data has been changed. To force recreation of all EMF bar codes, press <i>SHIFT</i> while you click " <i>Refresh...</i> ".
10	Options	<i>Options</i> allows you to configure specific add-in options. For more information, see section 5.2.3.
+	License	The link <i>License</i> opens a dialog for entering the license data (See chapter 8).
•	About	<i>About</i> displays the product version and copyright information.

Table 4: TBarCode Office Panel in Excel

5.2.3 Options

In the options dialog you can adjust specific settings for the Excel Add-In.

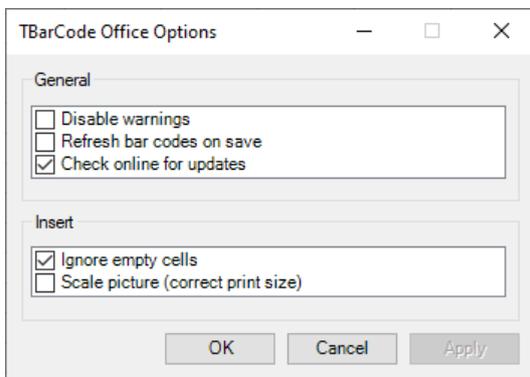


Figure 5: Options Excel Add-In

General Options	Description
Disable warnings	Use this option if you want to suppress warnings like "Cannot update bar code size" during document loading. If warnings are disabled, there is also no check for low system resources (GDI Objects) when inserting or refreshing a bar code.
Refresh bar codes on save	The add-in updates EMF barcodes (if they are linked to cells) immediately before printing. This option also updates linked barcodes when the document is saved. Note that the barcodes are only updated if the data has changed.
Check online for updates	If a newer add-in version is detected on the update server, you will see a notification at the bottom of the panel. You can disable this option if you don't want to check for updates. If the update check fails after a specific number of retries, this option is disabled automatically (but can be enabled again).
Insert Options	Description
Ignore empty cells	If you have selected multiple cells, you can omit bar code creation for empty cells. This option prevents creation of bar codes without data.
Center in cell	Barcodes can be automatically centered in the cell when inserted. The barcode

⁶ Update function not supported with static EMF barcodes.

	remembers this setting and centers itself automatically when refreshing.
Scale picture (correct print size)	In Excel, there is an issue with distorted images when printing. Namely, square bar codes appear stretched in their width on the printout. This option scales the width of the inserted barcodes to 90% so they will appear correct on printouts. This fix is more relevant for 2D matrix codes. You can fine-tune the scaling factor with specific registry keys – for details contact support@tec-it.com .

Table 5: Option Settings Excel Add-In

5.3 User Interface Common for Word and Excel

5.3.1 Templates

In this dialog, you can choose one of the provided barcode templates. Each template provides pre-defined barcode settings, which comply with the respective barcode standard.

You can also select a custom template file created with **Barcode Studio**.

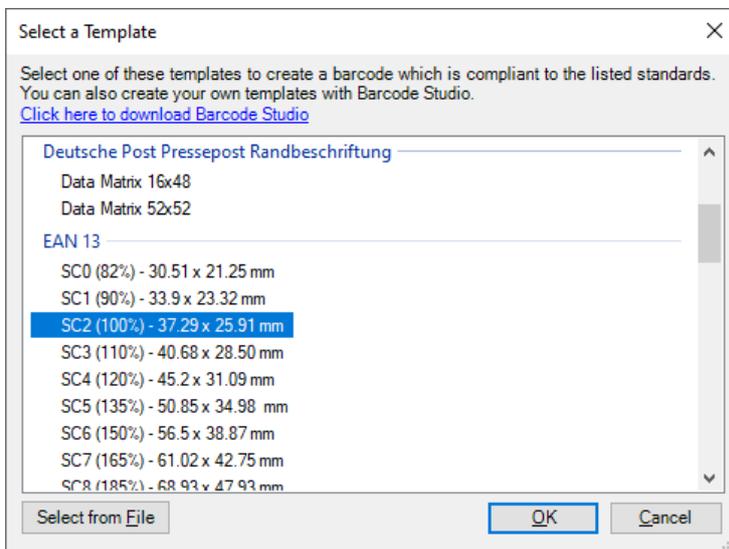


Figure 6: Templates for Industry Compliant Settings

- ▶ You do not have to purchase **Barcode Studio** to create a custom template. Download the demo, adjust barcode properties and save the .bc file to a common location.
- ▶ Barcode Studio does not save the size mode (module width, fit to bounding box) in a .bc file. You have to adjust this directly in the TBarCode panel.
- ▶ Barcode Studio does not save the draw mode option in a .bc file. If you want to set a different draw mode, you have to set it in the barcode settings.

5.3.2 Version Information / Update Notification

At the bottom of the TBarCode Panel you will see a notification once there is a newer version available. Click the notification to open the download URL for the new version. The update check is performed once you open the TBarCode Panel.

If there is no newer version available (or the update check has been disabled or is not possible due to limited internet connectivity), you will see the current add-in version information displayed.

- ▶ If there is a persistent problem contacting the update server (e.g. by firewall or internet), the update check is disabled automatically after a specific number of retries. Go to the add-in options to enable the online update check again if the problem has been resolved.
- ▶ The update check can be preset via HKLM registry settings (contact our support).

6 Using TBarCode Office

This chapter introduces the **TBarCode Office** add-in and explains how to use barcodes in documents, mailings or spreadsheets.

Check out and learn more about **TBarCode Office** in our videos hosted on YouTube!
www.youtube.com/view_play_list?p=1E807C6F1590D866

6.1 Operations Common for Word and Excel

6.1.1 Inserting a Barcode

There are different ways for adding a barcode to your document.

6.1.1.1 Using the Insert Button

To insert a barcode use the button *Insert Barcode* in the panel – see 5.1.1.

6.1.1.2 Using the Insert Tab

Click the *Insert tab* in the Ribbon and choose *Insert Barcode*. The barcode is inserted at the actual cursor position immediately. The settings of the last inserted bar code are applied.

6.1.1.3 Using the Add-Ins Tab

For inserting a barcode with this method, switch to the *Add-Ins tab* and click *Insert Barcode* in the Ribbon.

6.1.2 Updating a Barcode

Open the panel (see 5.1) and select the barcode, which should be configured. If you change the bar code settings in the Panel, the barcode is updated immediately (for applying the size, click Update).

6.1.3 Deleting a Barcode

Select the barcode that you want to delete and then press the *Del* key.

6.1.4 Loading a Template

Click on the templates icon  in the upper-right corner. A list with templates is displayed. Select a template and click OK or click Select from File... and select a *.bc file to load.

6.2 Microsoft Word

6.2.1 Create Mailings

The **TBarCode Office** add-in for Microsoft Word encodes mail merge fields directly in the barcode. Please follow these steps:

- Start with a new Word document.
- Activate the *Mailings tab* (1).
- Select or create a recipient list (2).
- Open the panel (3) – see 5.1.
- Select a barcode type and enter the barcode data (4).
- For inserting merge fields use the *Insert Fields* button (5) in the panel. Merge fields are only available if you have selected a recipient list.
- Then click *Insert Barcode* (6).
- Adjust the barcode size - width, height etc (7).
- Test the mail merge:
- Switch back to the *Mailings tab* then click *Finish & Merge* (8).
- For testing, we recommend to perform a mail merge into a new document.
- Select about 10 records and make a test print.
- Verify the bar code with a bar code scanner⁷
- Make sure the resulting layout is OK if you have received a resizing warning.

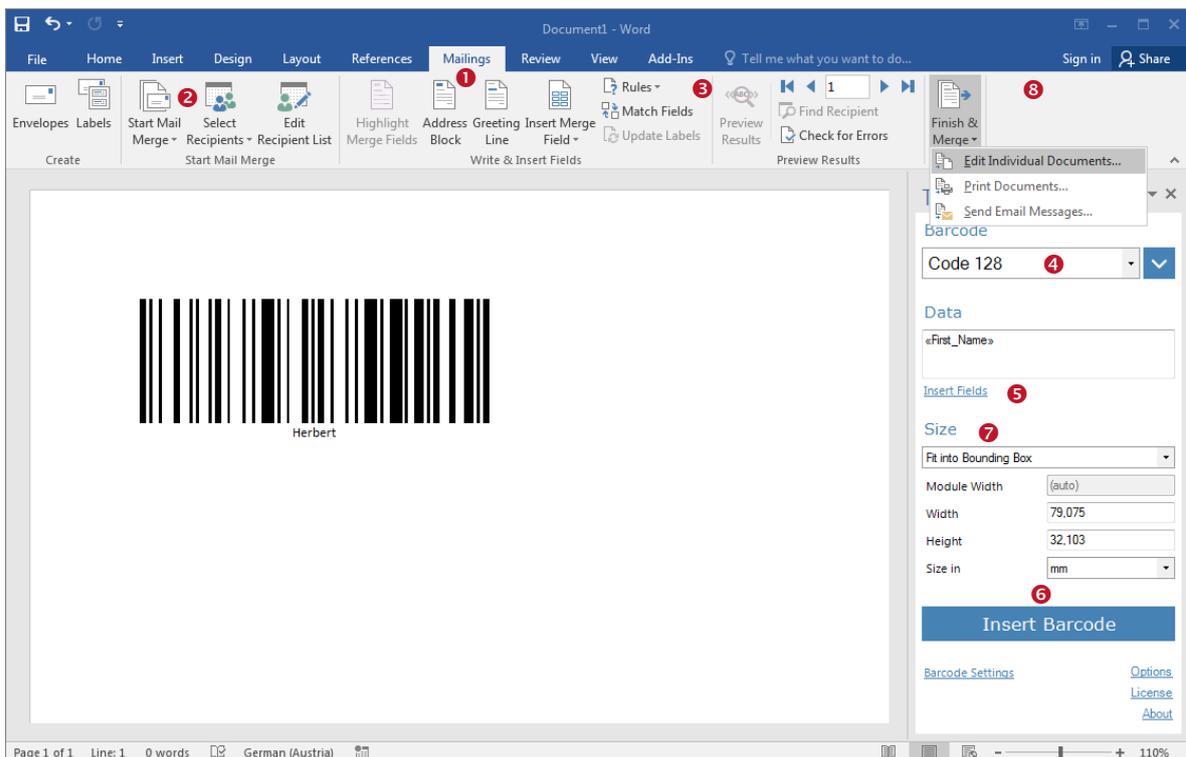


Figure 7: Guide for Using Mailings

- ▶ Finish & Merge – Print Documents uses fewer resources than the other methods.
- ▶ The number of bar codes per mail merge is limited due to system resources (see 6.2.5).
- ▶ Always make test reads and random checks of the generated bar codes.

⁷ If you encounter reading or quality problems, check out our [Barcode Reference](#) (section “Creating Optimal Barcodes”). Thermal transfer printers require adjusting the module width parameter to the printer resolution (DPI).

6.2.2 Create Labels

Microsoft Word's mail merge wizard can also be used to create barcode labels. Please follow these steps:

- Start with a new Word document.
- Activate the *Mailings tab* (1).
- Select *Start Mail Merge* (2) and click Labels. A dialog will pop up. You can select different label sizes.
- Select or create a recipient list (3).
- Open the **TBarCode Office** panel (4) – see 5.1.
- Select a barcode type and enter barcode data (5).
- Click inside the first cell of the table and click *Insert Barcode* (6).
- Finish the layout of the first label. Use *Insert Merge Field* (7).
- Now switch back to the *Mailings tab* and click *Update Labels* (8). This automatically inserts the content from the first table cell (first label) into all other cells (labels).
- Click *Finish & Merge* (9).

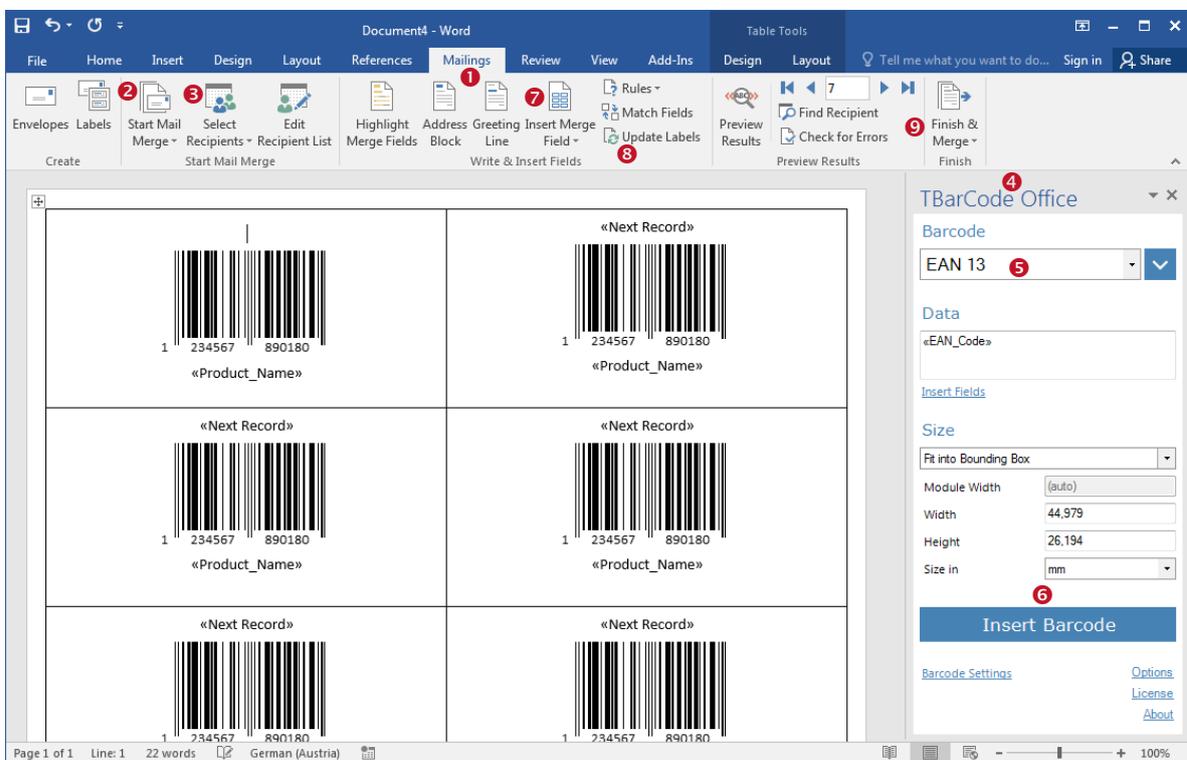


Figure 8: Barcode Label Printing

- ▶ If you change something in the first label - e.g. the bar code size - please click *Update Labels* (8) in the *Mailings tab* to update the remaining labels (bar codes) on the page.
- ▶ Always make test reads and random checks of the generated bar codes.
- ▶ To ignore errors during the mail merge you can disable warnings in the add-in options.

6.2.3 Insert Document Properties

TBarCode Office (Word Add-In) supports placeholders for document properties, which are automatically resolved before printing.

In order to insert document properties into a bar code follow these steps:

- Start with a new Word document.
- Open the panel (1) – see 5.1.
- Select a barcode type and enter the barcode data (2).
- Use the *Insert Fields* button (3) in the panel to bring up the selection of available merge fields and document properties (4).
- In the *Properties tab* select a document property (5) and click *Insert* (6).
- A placeholder for the document property will be inserted into the Barcode Data field (7).

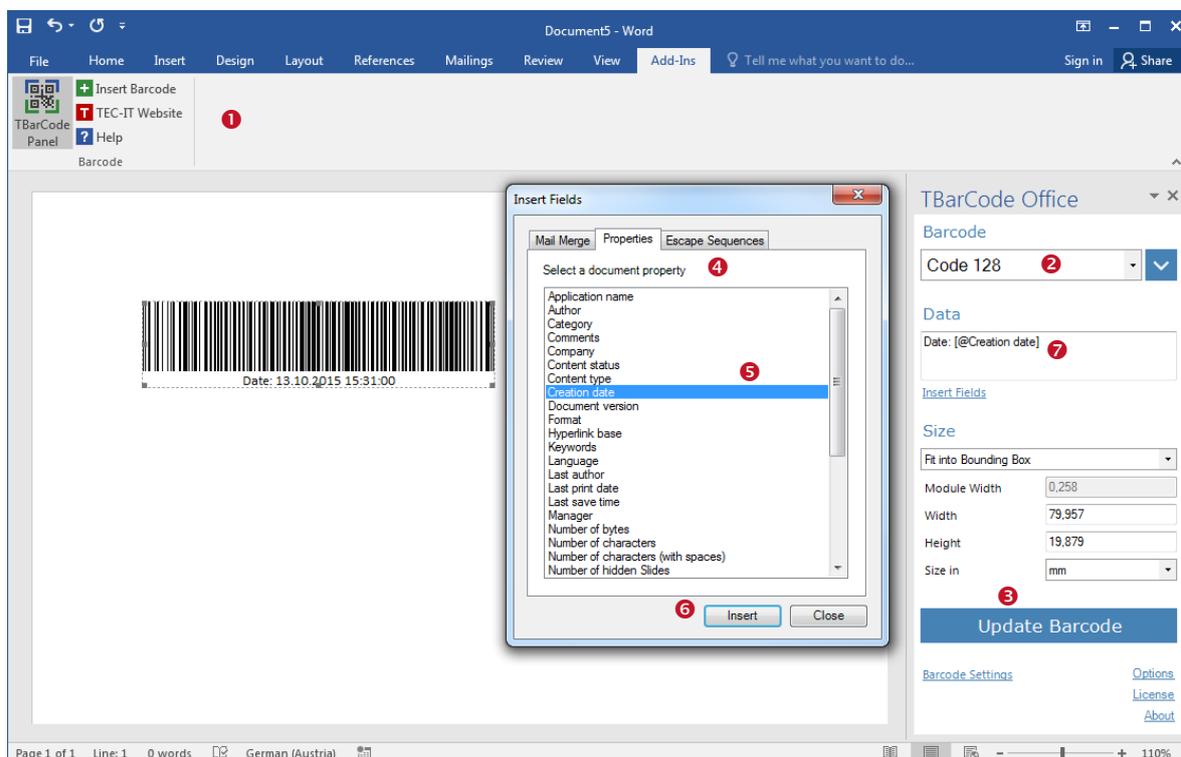


Figure 9: Insert Document Properties

You can enter the placeholder format also directly into the Barcode Data field:

[@*Property name*]

Please note that the property names are case sensitive.

- ▶ If the property name is unknown or the placeholder format is incorrect, the (unresolved) placeholder sequence will be encoded instead of the property value⁸.

In Microsoft Word, not only standard properties but also custom properties or content type⁹ (server) properties can be assigned to a document. **TBarCode Office** does not distinguish between standard, custom or server properties – *all are referenced by the same placeholder format*.

⁸ This behavior may be changed (or made be configurable) in a later version.

⁹ Available via Microsoft® Sharepoint server

Placeholders for document properties are resolved in the following order:

1. Search in standard properties
2. Not found => Search in custom properties
3. Not found => Search in content type (server) properties.

The document properties are updated in the bar codes *immediately before printing* and – on demand - when saving the document as PDF (via option “Refresh bar codes on save”).

On the other hand, exporting the document as PDF or emailing *will not update the bar codes*¹⁰!

- ▶ The Word function *Save & Send* does not refresh document properties in the bar codes.
- ▶ If the option “Refresh bar codes on save” is enabled, the barcodes are updated from within the *File – Save As* menu.
- ▶ You can turn off encoding document properties in the add-in options.

6.2.4 Reference Content Controls, Legacy Form Fields and Bookmarks

TBarCode Office (Word Add-In) supports placeholders for referencing content controls and legacy form fields (either via Tag or via Bookmark). The placeholders are automatically resolved before printing, which means the actual value of the control will be populated into the bar code.

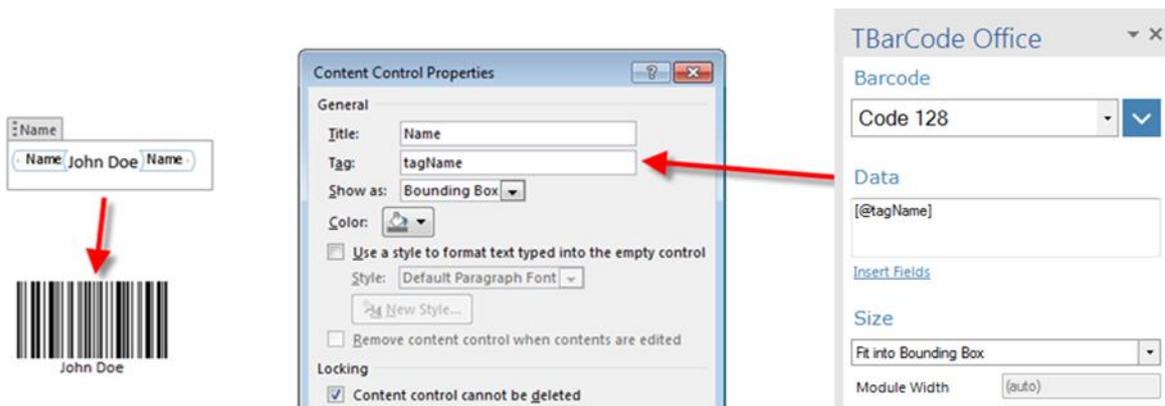


Figure 10: Reference Content Controls

Please use the following placeholder format in the *Barcode Data* field:

- [@!TagName] ... for Content Controls
- [@!Bookmark] ... for Form Fields and Bookmarks

Please note that the referenced tag name or bookmark is case sensitive.

- ▶ If the reference is unknown or the placeholder format is incorrect, the (unresolved) placeholder sequence will be encoded instead of the referenced value¹¹.

The following types of content controls and form fields are supported:

- | | |
|---|---|
| <p>Content Controls:</p> <ul style="list-style-type: none"> ▪ Text ▪ Rich Text ▪ Combo Box ▪ Date ▪ Drop-Down List | <p>Legacy Form Fields:</p> <ul style="list-style-type: none"> ▪ Text ▪ Check Box ▪ Drop-Down |
|---|---|

¹⁰ The add-in needs the internal “OnPrint” event from Word for updating the bar codes.

¹¹ This behavior may be changed (or made be configurable) in a later version.

- ▶ The Word function *Save & Send* does not refresh referenced values in the bar codes.
- ▶ If the option “Refresh bar codes on save” is enabled, the barcodes are updated from within the *File – Save As* menu (works also with PDF).
- ▶ You can turn off referencing content controls / form fields in the add-in options.

6.2.5 Limitations Word Add-In

Please take care of the following limitations when using the Word Add-In (see also 6.2.6):

- The number of bar code controls is limited to 256 controls per (master) document. This limit affects only the master document and not the printed (already merged) documents.
- If you perform a mail merge, the number of bar codes in the generated output may be limited to 4000 per mail merge. This limit was introduced to deal with extensive system resource consumption (see 6.2.5.1) and depends on your Office version.
- The supported rules for mail merge documents are «*Next Record*» and «*Next Record If*».
- The layout wrapping style of the barcode image must be *Inline with text*, otherwise the bar code is not recognized / updated during the mail merge. Partially added support for other wrapping styles must be considered as “experimental”¹².
- The mail merge data source must be an OLE DB data connection. Go to *Word Options | Advanced | General* and make sure that *Confirm file format conversion on open* is activated. Then open the data-file again (see 6.2.1). In the *Confirm Data Source* dialog select *OLE DB Database File*.

6.2.5.1 System Resources

Word needs GDI objects for drawing the bar code images. There is a system limit¹³ for GDI objects, which also limits the number of bar codes to be generated per Word session. If all free resources have been consumed, you will see that the application loses responsivity. A restart of the application (Word) will free up resources again.

The following operations are more sensitive regarding resource consumption:

- Mail merge into a new document
- Mail merge with labels (multiple bar codes per page)

- ▶ In Word 2016 and later, the handling of GDI objects has been improved.

Workarounds:

- If you have a higher number of bar codes to be generated, split up bar code generation into multiple Word sessions / mail merge runs. *Restart Word* after every mail merge.
- A mail merge directly to the printer may use fewer resources than into a new document.
- If required, disable the limitation warnings in the Add-In options – but pay attention to the GDI object consumption in the mail merge progress bar.
- For large mailings and mass printing, we recommend our [TFORMer](#) form printing software.

6.2.6 Known Issues Word Add-In

Please take care of the following known issues when using the Word Add-In:

- A mail merge into a new document may scale the bar code - see Word Option “EMF size [Pixel]” in section 5.1.3 for how to solve this issue.
- Popups during a mail merge (especially *into a new document*) may disturb barcode positioning – the add-in option *Suppress error notifications* may be a workaround.

¹² Experimental means that the feature is under development and must be used at own risk.

¹³ More information about GDI objects [https://msdn.microsoft.com/en-us/library/windows/desktop/ms724291\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/desktop/ms724291(v=vs.85).aspx)



- Using the *NextRecordIf* field in a mail merge document can result in a wrong (out of sync) record number in the progress bar and in the error log.
- Encoding the left and right angle quotes (« ») into a bar code in a mail merge document is only possible with escape sequences.
- Mail merges with text file data sources (TXT, CSV...) are supported only with an OLE DB data connection. If accessed directly (without OLE DB driver), only the first two records can be merged, then the mail merge stops.
- The mail merge preview does not update the bar code automatically.
Workaround: Move to the record you want to preview. Select the bar code and click *Update* in the TBarCode Panel. Then the barcode is updated with actual data.
- It is not possible to insert a bar code directly into a *{ Field }* because the bar code object will be deleted by Word during the field update. Additionally, if the bar code data contains a mail merge field, an error message will be displayed.
- If you reference bookmarks, the content of the bookmarks should not be dynamically changed during a mail merge or before printing. In some cases the content of the bookmarks is updated by Word *after the add-in gets access to the bookmark*, so you may get old data (e.g. from the previous data record).
- VBA Macros running in the background may disturb the mail merge process.
- The Word function *Save & Send* or *Share → Email* does not refresh the document properties in the bar code – only printing does (or *Save As* if the add-in option *Refresh on save* is enabled).
- More extensive mail merges should contain random checks of the created barcodes. Word may run into a problem and may not update the barcodes. This should be tested via random samples.
- Users of the *Adobe® Acrobat® Pro Add-In* may experience a crash when using the *Merge to PDF* function (Mailings). In addition, they cannot immediately switch to Design mode by selecting a bar code¹⁴; they have to open the **TBarCode Office** panel first.

For more issues and possible workarounds see our [Online FAQ](#).

¹⁴ This limit is part of a workaround introduced with Version 10.5.6.



6.3 Microsoft Excel

6.3.1 Link a Cell with a Barcode

The **TBarCode Office** add-in for Microsoft Excel is able to link cell-contents to barcodes. So you can create dynamic barcodes which update automatically whenever a cell is changed.

There are different ways to do this. Please follow the steps below.

6.3.1.1 Manual Linking

- Start with a new Excel workbook.
- Click inside the worksheet and type some data into a cell.
- Open the panel (1) – see 5.1.
- Click on an empty cell and click *Insert Barcode* (2) and confirm using default data for the inserted barcode.
- Check *Link to Cell* (3). The data input will change to *Select a Cell (ESC to Abort)*.
- Click on the cell that was used in step 2 or to any other cell you want to link to.

6.3.1.2 Automatic Linking

- Start with a new Excel workbook.
- Click inside the worksheet and type some data into a cell.
- Open the panel (1) – see 5.1.
- Check *Link to Cell* (3).
- Select the cell.
- Click *Insert Barcode* (2).

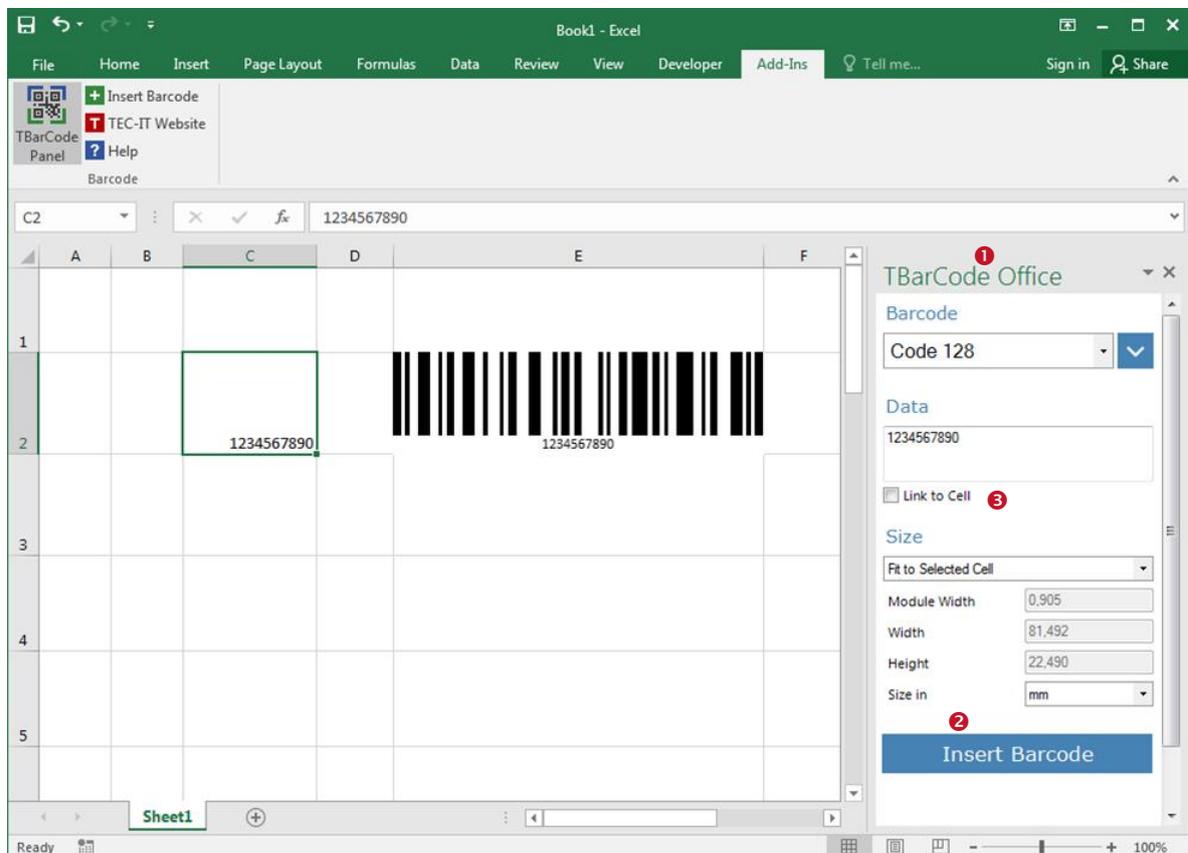


Figure 11: Link Barcode

6.3.2 Generate Barcode-Lists

To create a list of bar codes based on the cell contents follow the steps below.

6.3.2.1 General Guide for Creating Barcode Lists

- Start with a new Excel workbook.
- Click inside the worksheet and type some data into a few cells (1).
- Open the panel (2) – see 5.1.
- Select a barcode type (3) and set dimensions for the barcodes (4).
- Select all the cells that you want to convert to barcodes.
- Click *Insert Barcode* (5).

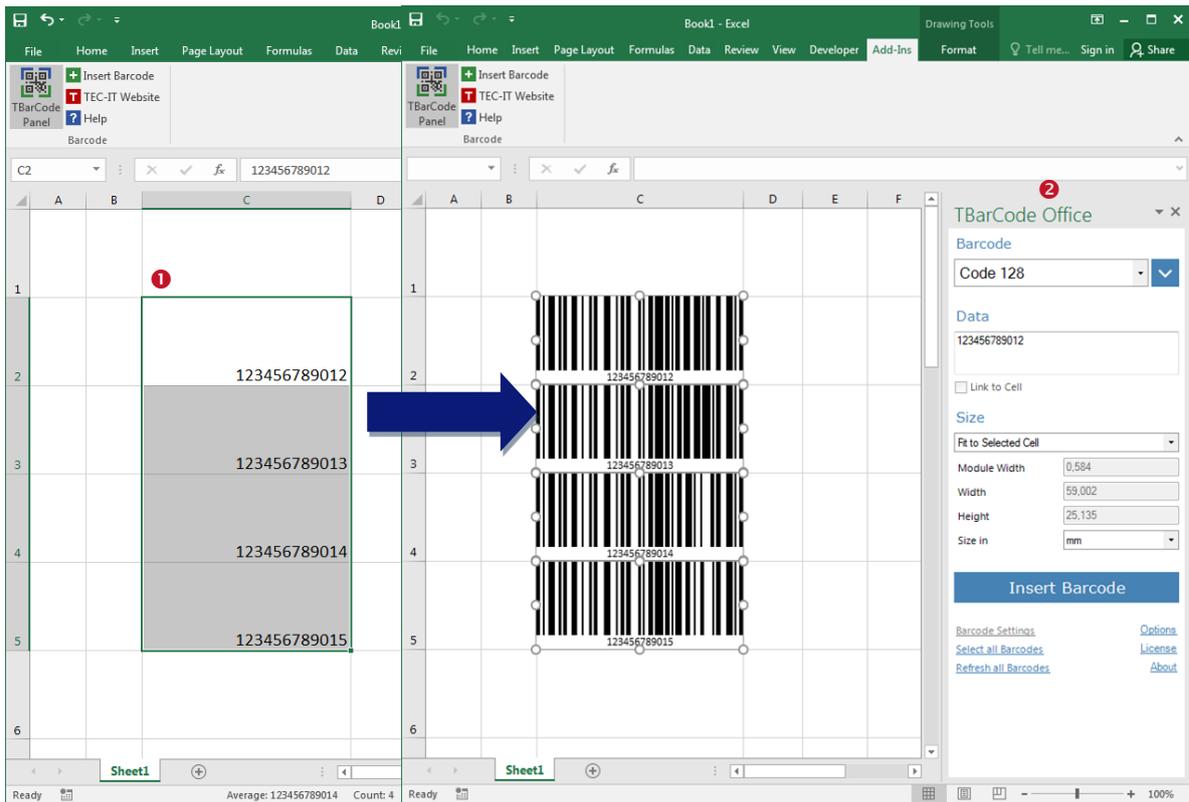


Figure 12: Guide for Creating Barcode Lists

6.3.3 Interferences with VBA

In some cases the TBarcode Panel can prevent execution of VBA code. The reason is that the TBarcode Panel switches to Design Mode - this is required to allow bar code controls to be selected and changed.

As a workaround VBA programmers can prevent the Add-In from switching to Design mode if they disable screen updating.

```
Application.ScreenUpdating = False
Your VBA Code (e.g. open workbook)
Application.ScreenUpdating = True
```

Thus VBA code can be executed without interruption as long as the user does not open the TBarcode panel or insert a bar code.

► Macros running in the background may block access to linked cells.

6.3.4 Limitations Excel Add-In

- If you create a list of bar codes, the number of bar code controls per insert operation is limited to 600.
- Bar codes linked to a cell are updated only before printing (not in preview), on saving (if enabled in the add-in options) and manually through the Refresh function.

6.3.4.1 System Resources

Excel uses GDI objects for drawing bar code images. There is a system limit for GDI objects, which has an influence on the number of bar code drawing operations per Excel session¹⁵.

If all free resources have been consumed, you will see that the application loses responsiveness. A restart of the application (Excel) usually frees up the resources.

The following operations are sensitive regarding resource consumption:

- Insertion / Moving / Refreshing a larger number of bar code controls
- Closing the TBarCode Panel (disables design mode, triggers a refresh)
- Opening the Print Preview
- Scrolling through the document (creates a redraw)

Workarounds:

- Reduce the number of bar codes per Excel sheet.
- Do not open multiple workbooks/sheets with a larger number of bar codes in parallel.
- For a higher number of bar codes use our [TFORMer](#) label and form printing software.

6.3.5 Known Issues Excel Add-In

- With remote desktop or docking stations, the changed screen resolution affects the drawing/size of the bar codes, which may become unreadable.
- We have noticed problems with complex Excel documents with more than 600 barcodes. The response is slow and crashes may occur. This behavior is due to the internal processing of EMF images and does not depend directly on the add-in.
- Embedded Excel sheets (in Word) may not open.
- Macros running in the background may block access to linked cells.

6.3.5.1 Resizing Issues

The following issues are by design of Excel:

- Excel scales / stretches images when printing; that means the width/height ratio changes on the printout. As a result, square 2D matrix bar codes no longer appear square. For this problem there is a picture scaling workaround (see 5.2.3).

For more issues and possible workarounds see our [Online FAQ](#).

¹⁵ Microsoft Excel 2016 / 2019 / 365 consume more GDI resources than other versions (varies with service releases).

7 Barcode Settings

7.1 Introduction

The property grid of **TBarCode Office** gives you access to advanced bar code properties. Open the floating property dialog with the *Barcode Settings* link in the panel.

7.2 Property Grid “Barcode”

The first section is the “Barcode” category. It contains all barcode-related settings like *Barcode Type*, *Bar Width Reduction*, *Module Width* and many more.

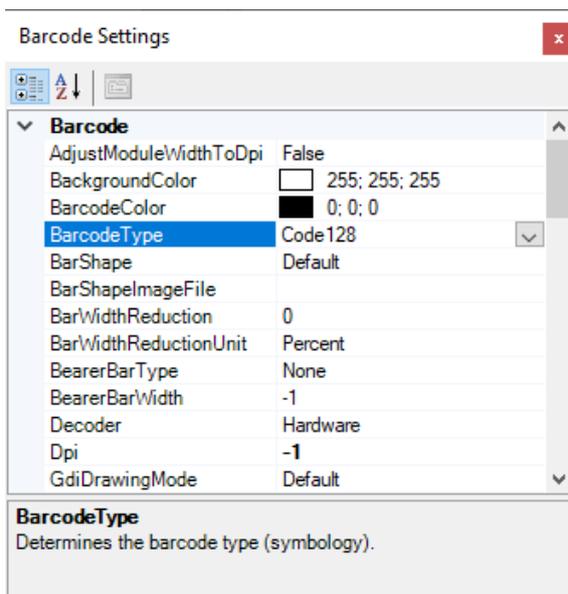


Figure 13: Property Grid “Barcode Settings”

7.2.1 Adjust Module Width To DPI

This will align the bar width to the adjusted output resolution (DPI). Since Word or Excel scales the EPS picture anyway, this feature should remain disabled (reserved for future use).

7.2.2 Background Color

Adjusts the background color of the barcode (color of the spaces). If the property *IsBackgroundTransparent* is enabled, the adjusted background-color will be ignored.

7.2.3 Barcode Color

Adjusts the color of the barcode (color of the bars).

7.2.4 Barcode Type

Here you adjust the barcode type or “symbology”. The bar code type to choose depends on your application.

- Common linear barcode types are UPC-A (USA), EAN-13 (Europe), GS1-128, Code 128, Code 39, 2 of 5 Interleaved.
- Common 2D barcode types are Data Matrix, QR-Code and PDF417.

Barcode specific settings are described in 7.5.

Some barcode types support encoding of digits only (e.g. UPC, EAN, Code 2of5 IL). Others allow the usage of digits, uppercase characters and special characters (e.g. Code 39). Again, others can be used to encode arbitrary alphanumeric data (Code-128, QR Code, Data Matrix, etc).

For more information on barcode types please refer to the Barcode Reference (see Appendix A).

- ▶ If the selected bar code type cannot represent the entered data, you will see an error message with the first unsupported character.

7.2.5 Bar Shape

Adjusts the bar shape (rectangle, ellipse, big ellipse, rounded rectangle, image).

For special purposes only (e.g. stylish QR Codes). These settings may influence the decodability of the bar code – we recommend keeping the Default setting.

If you chose *Image*, the image specified in *BarShapelImageFile* will be used.

7.2.6 Bar Shape Image File

The full path to the image file. The specified bitmap file (BMP, PNG, JPG) will be scaled to fit into a single bar or dot - applied only if the BarShape property is set to *Image*.

7.2.7 Bar Width Reduction

Sets the bar width reduction in the unit specified in *BarWidthReductionUnit*.

Use this property if you have to deal with unwanted *dot gain* in the printing process.

Example: When printing on inkjet printers, the ink that is absorbed by the paper tends to diffuse. Adding a bar width reduction allows you to work against this spreading of ink. Also for laser printers with high toner saturation, this property is useful.

- ▶ A bar width reduction may create undefined results if used with low output resolution (e.g. with thermal transfer printers).
- ▶ When using this feature we recommend you to do some test-scans to make sure that the bar code can be scanned correctly. A common value to start with is 15%.

7.2.8 Bar Width Reduction Unit

Sets the bar width reduction unit.

If the unit is set to percent, the bar width reduction is applied in percent of the module width. Thus when the reduction is set to 20 all bars will be narrowed by 20 percent of the module width.

7.2.9 Bearer Bar Type

Sets the bearer bar type.

Bearer bars were introduced to equalize the pressure exerted by the printing plate over the entire surface of soft materials. They also enhance the reading reliability by helping to reduce the probability of misreads by skewed scanning beams.

Usually, bearer bars are used with ITF-14 or the DPD symbology only. For some types (like UPC and EAN) the bearer bar type must be set to *None*.

Value	Description
None	Do not print bearer bars.
Top and Bottom	Print bearer bars at the top and the bottom of the symbol.
Rectangle	Print bearer bars on all 4 sides of the symbol. For rectangular bearer bars, the quiet zone (see section 7.2.20) must be at least 12 times the module width. Otherwise no bearer bars will be printed.
Top	Print bearer bars at the top of the symbol.
Bottom	Print bearer bars at the bottom of the symbol.

Table 6: Bearer Bar Type

7.2.10 Bearer Bar Width

Sets the width of the bearer bars in [mm].

- ▶ The minimum width of the bearer bars is two times the module width (which is also used as default value). If any smaller value is entered, the minimum width will be used instead.

Note: If the bearer bar width is set to zero, no bearer bars are printed.

7.2.11 Decoder

Specifies, which kind of decoder is used for reading the barcode.

This property is only relevant for size mode “Minimal Module Width”. Note that this size mode is only partially supported by TBarCode Office.

Value	Description
Both Hardware and Software	Select this option if you do not know which type of barcode decoder will be used. Based on the adjusted DPI, TBarCode will automatically choose a barcode size, which can be read with both decoder types, Software and Hardware. ▶ If you are unsure about the resolution, we recommend a setting of 300 dpi. This should be readable in most cases.
Hardware	Select this option if the barcode is read via a scanning device (e.g. handheld scanner). This setting guarantees a minimal module width of 0.254 mm for linear barcodes and 0.5 mm for 2D barcodes.
Software	Select this option if the barcode symbol is received as an image (e.g. via flatbed scanner, camera, fax software, etc.) and decoded via software solution. This setting guarantees a minimal module width of 5 pixels. This value ensures readability by most software decoders.
TBarCode InForm	Select this option if you plan to use the TBarCodeInForm software solution.

Table 7: Decoder

7.2.12 DPI

Sets the DPI, which is used as basis for optimizations of the module width (see 7.2.1 and 7.2.11).

Should be equal to the resolution of the output device. We recommend setting the DPI to -1 and not using any optimization features since the output resolution is not known or can vary by printer.

7.2.13 GDI Drawing Mode

Due to problems with certain screen or printer drivers, **TBarCode** is able to use different methods to draw barcodes. We recommend keeping the Default setting, since it provides the best output quality.

Value	Description
Default	The bar codes are drawn in the advanced mode. This provides the best quality.
Advanced	

Compatible	The bar codes are drawn in the compatible mode. This may decrease the quality (bar width is reduced) and should be used in special cases only. Needs test scans.
Dual	The bar codes are drawn in the dual mode. This is a combination of the Advanced and Compatible mode. Use it only if you don't get any output with the other modes.

Table 8: Draw Mode

7.2.14 Is Background Transparent

Sets the background transparency. If set, the background is not filled with the background color. Anyway, Excel may always apply a standard (white) background.

7.2.15 Is Mirrored

If enabled, the horizontal drawing direction is flipped.

7.2.16 Module Width [mm]

Specifies the width of one module or matrix dot in [mm]. Note that this value is considered only if the size mode is set to *Custom Module Width*.

A module is the smallest graphical element of a barcode. The widths of all bars and spaces are multiples of one module. Another term is "Narrow Bar Width" or "Dimension X".

The value affects the total size of the bar code and should be chosen according to your output resolution, bar code reading distance and label requirements.

A constant module width is recommended if you have a varying amount of input data and if the optical data density should remain constant. Furthermore, some label specifications require a constant module width.

7.2.17 Must Fit

Reserved for future use: We recommend keeping Must Fit disabled.

7.2.18 Notch Height

Sets the height of the protruding bars in EAN-13, EAN-8, UPC-A and UPC-E in [mm].

Enter a value of -1 for using the default notch height of each code.

7.2.19 Options

Sets advanced bar code options as text string (name=value format).

Examples:

- DRAW_BarWidthReduction_Legacy=[enum] - enable legacy mode for bar width reduction (0 .. disable, 1 .. reduce each module, 2 .. reduce right and bottom).
- QrCode_EncodingMode=[enum] - set the QR-Code Encoding Mode (0 .. optimal, 1 .. prefer binary/Byte, 2 .. prefer alphanumeric).
- DataMatrix_EncodingMode=[enum] - set the Data Matrix Encoding Mode (0 .. optimal, 1 .. enforce binary, 2 .. prefer ASCII, 3 .. prefer C40).

The [list of options](#) can be found in the [TBarCode Library documentation](#).

7.2.20 Quiet Zones

The quiet zone is an empty area around the barcode. It helps the scanner to identify the bar code and avoid misreading.

▼ QuietZones	TECIT.TBarCode.QuietZones
▼ Bottom	TECIT.TBarCode.QuietZoneSettings
Color	<input type="text" value="255; 255; 255"/>
Size	10
UseDefaultColor	True
> Left	TECIT.TBarCode.QuietZoneSettings
> Right	TECIT.TBarCode.QuietZoneSettings
> Top	TECIT.TBarCode.QuietZoneSettings
Unit	Modules

Figure 14: Quiet Zone Adjustment

In the property dialog, you can adjust the quiet zone color and size for all four sides of the barcode separately. We recommend using the default color (white).

Possible units for the size are *Modules*, *Millimeters*, *Mils* and *Pixels*. If the unit is set to *None*, no quiet zone is created (default).

For most 1D bar codes, a quiet zone should be maintained directly before and after the barcode symbol. As a general rule of thumb, the quiet zone should be ten times the dimension of the module width or at least 1/4 inch (6.5 mm). The exact value depends on the selected barcode type and label specification.

- ▶ A few barcode types provide the required quiet zone already automatically. These barcodes are EAN-8, EAN-13, UPC-A, UPC-E and ISBN. Adjusting the quiet zone for these symbologies will result in an additional white space (usually not required).
- ▶ Some bar codes like GS1 DataBar were designed to not need any quiet zone.

7.2.20.1 How to Add a Margin to a 'Fit to Cell' Barcode

By default, cell borders are covered by the barcode image if you chose size mode "Fit to Cell". If you want to add a small margin (1.5 pt) between the cell border and the barcode, you can use the following workaround:

- Set size mode to *Fit to Cell*
- Select the add-in option *Center in Cell* (see 5.2.3).
- Set the quiet zone unit to *Modules* (or any other value <> None).
- Insert the barcode: The size of the added barcode image is reduced slightly so that the edge of the cell remains visible.

7.2.21 Ratio

Sets the print ratio.

The print ratio is the relationship between the bar-widths and the space-widths of a barcode. Another term for ratio is "bar width ratio" or "bar/space width ratio".

- ▶ Usually there is no need to change the print ratio, unless needed for a special application.
- ▶ Caution: Barcodes may become unreadable when manipulating this value!

The print ratio format depends on the number of different bar- and space-widths used in the currently selected symbology.

Example (Code 128): If a barcode element has 4 different bar widths and 4 different space widths, the print ratio looks like this: **1:2:3:4:1:2:3:4**. In the first part (**1:2:3:4**) the ratio of the bar widths is set, in the second part (**1:2:3:4**) the relation of the spaces is set. In our example, they are the same. The smallest bar is "1" wide, the next larger is "2" wide (thus twice as the smaller bar) and so on.

For more information on print ratios, please refer to the Barcode Reference (see Appendix A).

7.2.22 Rotation

Specifies orientation of a barcode. Selectable values are 0°, 90°, 180° and 270°. The barcode is rotated counter-clockwise.

▶ Please note: Some fonts (for the human readable text) do not support rotation. If rotation is required, we recommend selecting a TrueType® font.

7.2.23 Size Mode

This option selects the calculation method for the barcode size.

Value	Description
Fit to bounding rectangle	Draws the biggest possible barcode, which fits into the bounding rectangle. Resizing the bounding rectangle resizes the barcode.
Custom module width	Uses the specified module width for drawing the barcode (see section 7.2.16). For linear bar code types, this affects only the horizontal size – the vertical size is still determined by the bounding rectangle.
Minimal module width	Creates the smallest possible and readable barcode for the selected DPI (see section 7.2.12) and Decoder type (see section 7.2.11). Note that the TBarCode Panel does not support this mode.

Table 9: Size Mode

7.3 Property Grid “Data”

The second section is the “Data” category. It contains all data related settings like Check Digit Method, Codepage, Data, Escape Sequences and more.

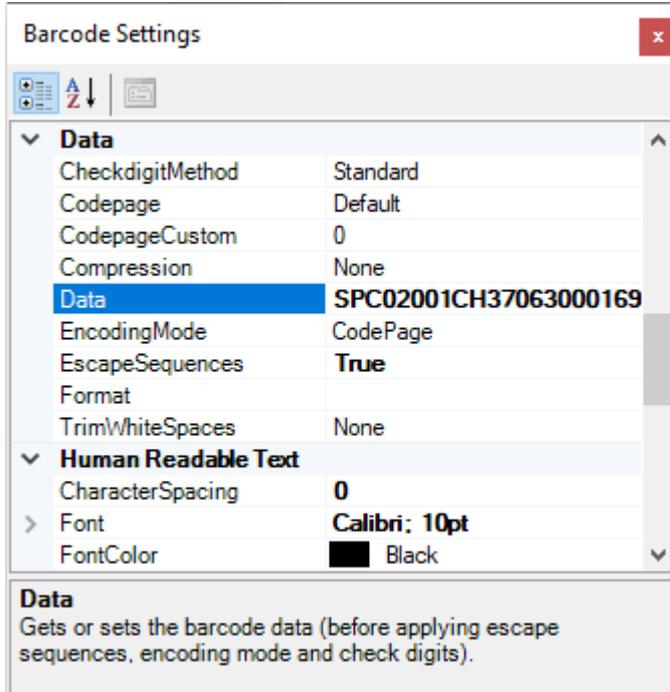


Figure 15: Property Grid “Data”

7.3.1 Check Digit Method

This option selects the calculation method for the check digit.

By default the appropriate check digit is selected automatically (entry “*Standard*”), which means that the check digit is calculated according to the barcode specification.

- ▶ Whether you need a check digit depends on your application and the selected barcode type.

Why check digits? In order to guarantee that the barcode data is read or entered properly, a check digit is inserted at the end of the utilizable data. A comparison of the barcode content and the check digit informs the scanning device or the scanning application about the correctness of the data.

- ▶ A different check digit method is admissible for special applications or for bar code types with selectable check digit methods only.
- ▶ For some barcodes the standard is to use no check digit.
- ▶ Often modern symbologies have already a built-in check digit (Code-128 and all 2D codes).

7.3.1.1 Check Digit Calculation

Some barcodes with a predefined number of utilizable data characters (like EAN-13, UPC-A and GS1 DataBar) include a check digit on a fixed position in the barcode data.

Example:



The EAN13 code permits 12 utilizable digits plus 1 check digit at the last position (❶).

If you enter 12 digits as barcode data this last digit (the check digit) will be calculated and inserted automatically. If you enter all 13 digits you have to supply the correct check digit by yourself (otherwise you receive an error).

- ▶ **TBarCode** verifies the correctness of the check digit supplied by your application.
- ▶ If not provided in your input data, the check digit will be calculated and appended automatically.

7.3.2 Code Page

Sets the code page (character encoding) of the bar code data. This property is considered only if the encoding mode is set to *Code Page*.

The code page is related to the property *Encoding Mode* and should be applied to text-based data (non-binary) only. You can choose among several pre-defined code pages (e.g. ANSI, ISO 8559-1 Latin I, UTF-8, Shift-JIS...) or add the ID of a custom code page.

The recommended value is *Default*, which uses the standard code page of the currently selected barcode type. For 2D codes and specific requirements you may choose a different code page (e.g. UTF-8 for mobile applications) – but you need to take care that your bar code reader can decode it.

7.3.3 Code Page Custom

Sets the custom code page identifier (Windows ID). This property is considered if the encoding mode is set to *Code Page* and the code page is set to *Custom*.

You can select any of the installed code pages from your Windows system:

- https://en.wikipedia.org/wiki/Windows_code_page
- <https://docs.microsoft.com/en-us/windows/win32/intl/code-page-identifiers>

7.3.4 Compression

Sets the compression method for the bar code data.

Value	Description
None	The barcode data will not be compressed. It will be stored in the barcode as is (default).
Deflate (RFC 1951)	The barcode data will be compressed using the Deflate algorithm (preferred).
GZip (RFC 1952)	The barcode data will be compressed using the GNU zip algorithm.
ZLib (RFC 1950)	The barcode data will be compressed using the ZLib algorithm.

Table 10: Compression

The compression is only available for barcodes, which allow the encoding of arbitrary binary data and a variable length of input data. By default, the compression is set to “None”.

- ▶ When reading compressed barcode data, you will have to decompress it in order to restore the original input data.
- ▶ Use this for special applications only. The recommended default setting is “None”.

7.3.5 Data

Sets the data encoded into the bar code.

If you want to encode non-printable characters or special function characters (e.g. FNC1) you need to use Escape Sequences (see 7.3.7).

For binary data, you can use the encoding mode *Low Byte* or *Hexadecimal* (see below).

7.3.6 Encoding Mode

The Encoding Mode specifies how the input data should be interpreted. If required, the input data can be converted to a binary stream or to another Codepage (UTF-8, GB 18030, Latin-2...).

- ▶ Input data is always passed as Unicode to **TBarCode**. On Windows, Unicode uses 2 Bytes per character (UTF-16). Linear barcode types are able to encode Single Byte character sets only, however 2D codes can encode also Multi Byte character sets or binary data.
- ▶ By default, the input data is converted to the character encoding selected in the *Code Page* property. If other kinds of interpretations are needed, you have to change this property.

You have the following possibilities:

Value	Description
Code Page	Converts the input data to the code page, which is selected in the property <i>Code Page</i> (default).
Lower Byte (no conversion)	Considers only the lower bytes of the UTF-16 input characters, the higher bytes are ignored.
Bytestream (lower before higher byte)	The data is passed as it is. No conversion is done. Both bytes are considered. The lower byte is passed before the higher byte.
Bytestream Reverse (higher before lower byte)	Consider both bytes but change the order of lower and higher byte. That means the higher byte is encoded before the lower byte.
Hexadecimal	The input data is treated as hexadecimal sequence of Byte values. You can use this format for encoding binary values.

Table 11: Encoding Mode

7.3.7 Escape Sequences

Selects whether escape sequences (like \n) are translated or not (default: no).

Escape sequences are useful if you need to encode control characters such as Carriage Return or FNC1. For encoding binary data into a 2D code, this feature may be very helpful as well.

For more information please refer to the Barcode Reference (see Appendix A).

7.3.8 Format (Subset)

The format string can be used for formatting the utilizable data of the barcode prior to encoding it.

Use this for some bar code specific (sub) formats and for placing the check digit to a specific position in the bar code data.

The format string is built upon placeholders, which can be combined with constant data characters to build the final data string. Certain control characters make it possible to change the Subsets for Code 128 and GS1-128, to define the desired start/stop character of CODABAR or to add specific data formats in MaxiCode and Japanese Postal Code.

For detailed information on format strings, please refer to the Barcode Reference (see Appendix A).

7.3.9 Trim White Spaces

Removes white space (blanks, tabs) either at the left, the right or on all sides of the data string (passed on by mail merge fields, cell data or by manual input).

In the TBarCode Panel, this will also remove unwanted Carriage Returns / Line Feeds from manually entered data.

By default, this is set to "All" for most bar code types.

- You should enable this option, if your data source contains unwanted white space or if you want to remove manually entered blanks or Carriage Returns from your input data.
- You should disable this option, if your data format needs blanks or Carriage Returns at the end of your bar code data.

7.4 Property Grid "Human Readable Text"

The third section is the "Human Readable Text" category. It contains all text-related settings like Font, Visibility, Position and more.



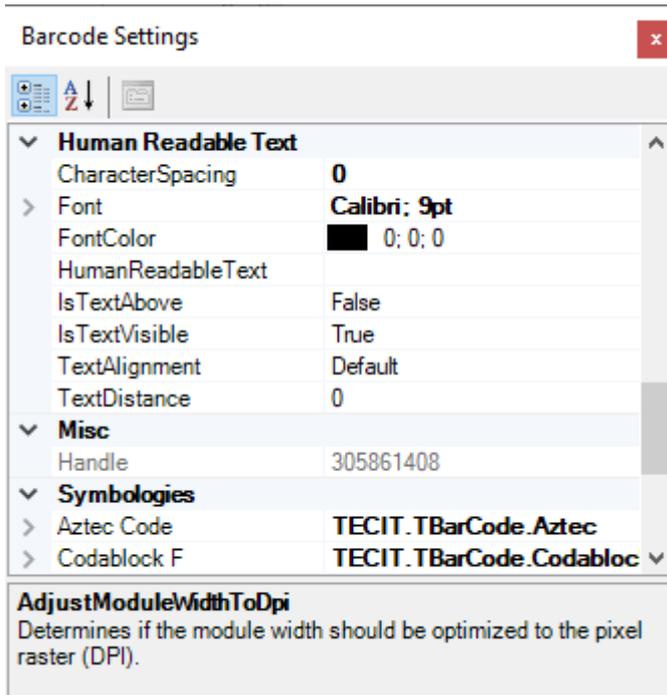


Figure 16: Property Grid "Human Readable Text"

The human readable text is usually printed below the barcode symbol and shows the content of the barcode.

- ▶ Not all barcode types support the printing of human readable text. If human readable text is not supported (e.g. with 2D Codes), the following settings will be ignored.

7.4.1 Character Spacing

Sets the character spacing in [pt] for the human readable text.

7.4.2 Font

Sets the font (name, size, style...) for the human readable text.

7.4.3 Font Color

Sets the font color for the human readable text.

7.4.4 Human Readable Text

Sets the text for the human readable text line.

If empty, the bar code data will be used for the HRT (recommended).

Use this property to "override" the standard text of the barcode. We suggest using this property only if you need to format the HRT in a specific way (different from standard bar code data).

This property does not affect what data is encoded in the barcode.

7.4.5 Is Text Above

If set to "True", the human readable text is printed above the symbol (default: below).

- ▶ For some barcodes (e.g. UPC-A, EAN-13) the text cannot be printed above.

7.4.6 Is Text Visible

Specifies whether the barcode data is printed as human readable text or not.

This property has no effect on 2D bar codes.

7.4.7 Text Alignment

Changes the alignment of the human readable text.

Value	Description
Default	Uses the default text alignment (= "Center").
Left	Aligns the human readable text to the left.
Right	Aligns the human readable text to the right.
Center	Centers the human readable text.

Table 12: Text Alignment

7.4.8 Text Distance

Allows you to specify the distance between the human readable text and the barcode in [mm].

7.5 Property Grid "Symbologies"

Depending on the selected barcode type, **TBarCode** offers additional barcode specific settings. You can access these settings by clicking on the corresponding symbology in the "Symbologies" category.

Additional settings are available for Aztec Code, Codablock-F, Code 2of5, Data Matrix, DotCode, GS1 Composite Codes, GS1 DataBar, Han Xin Code, MaxiCode, Micro QR Code, PDF417 and QR-Code.

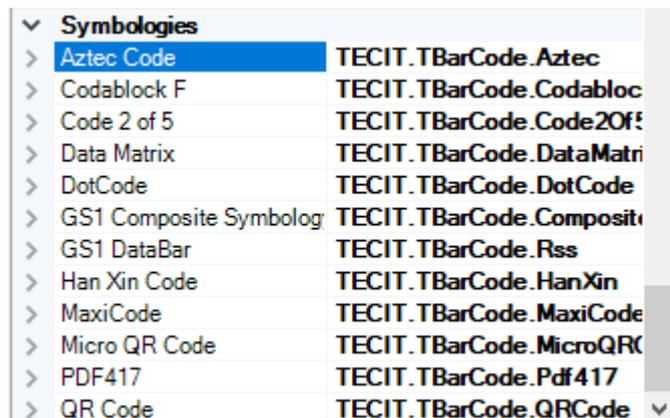


Figure 17: Symbologies...

The following sections will give an overview over these barcode-specific properties.

▶ Please take care when modifying these properties. Some settings may result in unreadable barcodes. Always make test scans to verify if your bar code can be decoded!

7.6 Properties "Aztec Code"

Aztec Code is a 2-dimensional Matrix Code. Characteristic for the Aztec Code is the finder in the center of the symbol, which consists of 3 to 5 overlapping squares.

7.6.1 Error Correction in % [0-90]

Unlike other 2D barcode types, the error correction level of an Aztec Code is not based on predefined levels, but can be specified as a percentage of the data volume. The default error correction level is 23% (which is recommended), but it may be set in the range from 0 up to 95%.

A value of -1 selects the default error correction level.

7.6.2 Format / Format Specifier

You can choose from:

Value	Description
Default	The standard format of Aztec Code.
UCC/EAN/GS1	Special format defined by GS1 (UCC/EAN). Used for encoding so-called Application Identifiers. FNC1 is added at first position.
Industry	For special industry formats. If you choose this value, you have to fill in a Format Specifier (2 digits or 1 letter). It determines which industry format the barcode data corresponds to. FNC1 is inserted at second position.

7.6.3 Is In Rune Mode

The Aztec Runes mode is a special mode of the Aztec Code. You can encode only values between 0 and 255. Aztec Runes can be displayed in a very compact way and are highly readable due to Reed Solomon error correction.

7.6.4 Is Structured Append Active

This option activates structured append mode (symbol chaining).

If you want to “connect” several Aztec symbols in order to encode larger quantities of data, you can use “Structured Append”.

7.6.5 Shall Enforce Binary Encoding

If set, binary mode is used for the internal encoding mode (no data analysis, no dynamic encoding mode selection). This mode is recommended for binary input data.

7.6.6 Size

Defines the matrix size of the Aztec Code symbol in [modules].

Possible values range from “Size 15 x 15” to “Size 151 x 151”. If the property is set to Default, the size is computed automatically based on the length of the barcode data.

Additionally you can select one of three reader modes: 19x19 Reader, 23x23 Reader, 27x27 Reader. These modes are used to program the barcode scanners.

7.6.7 Structured Append Index

Sets the index of the current symbol in the Structured Append chain.

In the symbol chain, each Aztec symbol must have a symbol identification. Its value can range from “A” (1) to “Z” (26). This index indicates the order in which the data is joined after the reading/scanning process.

7.6.8 Structured Append Message ID

The Message ID has to be the same for all symbols within a chain.

7.6.9 Structured Append Total

Sets the total number of symbols in the Structured Append chain.

Enter the total number of chained Aztec symbols here. A maximum of 26 symbols may be used within one chain, where “A” stands for 1 and “Z” stands for 26.

7.7 Properties “Codablock F”

Codablock-F is a stacked symbology based upon the Code 128 character set. Each row consists of a Code 128 symbol extended with row indicators (row count and sequence number) and an additional check digit.

7.7.1 Format

You can choose one of the following formats:

Value	Description
Default	Standard format.
UCC/EAN/GS1	Special format defined by GS1 (formerly UCC/EAN) to be used in GS1 applications. Used for encoding Application Identifiers (AIs). An FNC1 is encoded at first position automatically.

Table 13: Codablock-F Code Formats

7.7.2 Number Of Columns

Defines the number of columns of the generated bar code.

The value must be between 4 and 62. Start-, stop- and line-indicator columns, as well as code subset selectors are not taken into account. Default (-1): the number of columns is calculated automatically depending on the number of input characters.

7.7.3 Number Of Rows

Specifies the number of rows used for encoding.

The value must be between 2 and 44. Default (-1): The number of rows is calculated automatically depending on the number of input characters.

7.7.4 Row Height

Sets the height of an individual row in [mm].

Default (-1): The row height is calculated automatically.

7.7.5 Row Separator Height

Sets the height of the row separator in [mm].

Default (-1): The height of the separator is calculated automatically.

7.8 Properties “Code 2 of 5”

Code 2 of 5 is a linear code for numerical data, which always encodes the digits in pairs to increase efficiency. This also makes it very compact.

7.8.1 Auto Correction

When enabled (value set to true), a leading zero is added to the barcode data if an odd number of digits was supplied. This prevents the barcode generator from issuing an error, since this type of barcode always requires an even number of digits.

7.9 Properties “Data Matrix”

Data Matrix is a 2D code consisting of black and white "cells" or dots arranged in a square or rectangular pattern.

The bar code generator is using the latest ECC200 error correction method defined in ISO/IEC 24720:2006. Unlike other 2D codes, the error correction level is not adjustable.

The bar code add-in supports the additional matrix sizes as specified in the Data Matrix Rectangular Extension (DMRE) from DIN 16587 and ISO/IEC AWI 21471.

The default character set is Latin-1 or ANSI ASCII (equivalent to ECI 000003).

7.9.1 Format

Here you can chose a code format suitable for your application. Depending on the format, specific code words may be added to the header section in the bar code.

Value	Description
Default	The standard format of Data Matrix (no special header included).
Ucc Ean Gs1	Special format defined by GS1 (formerly UCC/EAN) for encoding Application Identifiers. This format adds the function character FNC1 at 1st position in the symbol.
Industry	This setting supports particular industry formats. FNC1 is added at 2nd position.
Macro 05	[>Rs05Gs is added at the beginning of the code. RsEot is added at the end.
Macro 06	[>Rs06Gs is added at the beginning of the code. RsEot is added at the end.
Reader	Special mode used for reader programming.
DP Post Matrix	Adds additional bars for <i>Deutsche Post Postmatrix</i> code.
Tolerant Check	Mode introduced for the "Mailmark" Code, where data check is more tolerant.

Table 14: Data Matrix Code Formats

7.9.2 Is Rectangular

Determines if the matrix should be created as a rectangle (true) or square (false – default).

7.9.3 Shall Enforce Binary Encoding

If enabled (true), all input data is encoded in BASE256 mode, otherwise the input data is analyzed and the most efficient mode (ASCII, C40, TEXT, BASE256) is automatically selected.

For binary data, you also have to disable Code Page conversion (see 7.3.6).

7.9.4 Size

Defines the matrix size of the symbol in terms of rows and columns.

Possible sizes are square 10x10 to 144x144 and rectangular 8x18 to 16x48 for the standard symbol and rectangular 8x48 to 22x48 for the DMRE symbols.

When set to default, the size is selected automatically depending on the amount of data.

7.9.5 Structured Append

The Structured Append feature allows distributing a data message across several 2D barcodes.

You can use this feature if the capacity of a single symbology cannot encode a long message. Up to 16 separate but logically connected symbols can be used to encode your message.

For enabling Structured Append, all properties must have a valid value. For disabling Structured Append, set all properties to -1 (Default).

7.9.5.1 Structured Append File ID [1...64516]

The File ID has to be the same for all symbols within a chain.

7.9.5.2 Structured Append Sum [2...16]

Enter the total number of chained Data Matrix symbols here. A maximum of 16 symbols may be used within one chain.

7.9.5.3 Structured Append Index [1...16]

A symbol identification number must be assigned to each Data Matrix symbol. Its value can range from 1 to 16. This index indicates the order in which the data is joined after the reading/scanning process.

7.10 Properties “DotCode”

DotCode is a 2D matrix symbology consisting of dots arranged in a specific rectangular field. It does not require high-precision printing; therefore, it can be used in highly efficient production environments where the code is applied at a speed of more than 1,000 codes per second.

The default character set is Latin-1 or ANSI ASCII (equivalent to ECI 000003).

The generated DotCode corresponds with AIM DotCode 4.0 (2019).

7.10.1 Format

Here you can choose a code format suitable for your application. Depending on the format, specific code words may be added to the header section in the bar code.

Value	Description
Auto (default)	If the data starts with 2 digits, GS1 mode is used, otherwise the generic format will be used
Generic	In generic mode, an FNC1 will be inserted to indicate generic data.
GS1	A special format defined by GS1 for encoding Application Identifiers.
Industry	Supports particular industry formats (adds FNC1 at 2nd position)
Macro 05	<i>[]>Rs05Gs</i> is added at the beginning of the code. <i>RsEot</i> is added at the end.
Macro 06	<i>[]>Rs06Gs</i> is added at the beginning of the code. <i>RsEot</i> is added at the end.
Macro 12	<i>[]>Rs12Gs</i> is added at the beginning of the code. <i>RsEot</i> is added at the end.
Custom Macro	<i>[]>Rs</i> is added at the beginning of the code. <i>RsEot</i> is added at the end. This macro needs a format specifier.
Reader	A special mode used for reader programming.

Table 15: DotCode Formats

7.10.2 Format Specifier

The format specifier is considered when format is set to Industry or Custom. The specifier must consist of 1 letter (upper or lower case) or 2 digits.

7.10.3 Is Structured Append Active

This option activates structured append mode (symbol chaining). "Structured Append" allows distributing a larger data message across several DotCode symbols.

7.10.4 Mask

Specifies the mask pattern that is applied to the symbol to achieve the highest possible decodability.

TBarCode calculates the optimal mask automatically. This is somewhat time-consuming - if the encoding process needs to be optimized, set a predefined mask.

This table shows the possible masks for DotCode barcodes.

Value	Description
No Prime Mask	The mask is computed automatically, but without considering prime masks. This option provides backward compatibility to DotCode 2.0 for older barcode readers.
Fast Calculation	The mask is calculated in fast mode.
Default	The mask is computed automatically (including DotCode 4.0 Prime masks)
Mask 0	Mask 0
Mask 1	Mask 1
Mask 2	Mask 2
Mask 3	Mask 3
Mask 0 Prime	Mask 0 Prime
Mask 1 Prime	Mask 1 Prime
Mask 2 Prime	Mask 2 Prime
Mask 3 Prime	Mask 3 Prime

Table 16: DotCode Mask Options

7.10.5 Print Direction

Optimizes the DotCode symbol for a specific print direction. If the print quality is the same in all directions, omit this setting.

Value	Description
Don't Care	No optimization (Default)
Optimize Horizontal	Optimizes the symbol for horizontal printing.
Optimize Vertical	Optimizes the symbol for vertical printing.

Table 17: DotCode Print Direction

7.10.6 Shall Enforce Binary Encoding

If enabled (true), all input data is encoded in binary mode, otherwise the input data is analyzed and the most efficient mode is automatically selected.

For binary data, you also have to disable Code Page conversion (see 7.3.6).

7.10.7 Size

Sets the size or aspect ratio depending on the size mode.

Note that the size entered here refers to the number of horizontal and vertical dots (rows/columns) in the symbol. The final size of the bar code depends on the dot size (module width) and the general size mode, which is set in the TBarCode panel.

7.10.8 Size Mode

Sets the size mode of DotCode – this affects how the Size property is interpreted.

Value	Description
Default	The barcode is created with an aspect ratio of 3:2 (width:height).
Ratio Width Height	The barcode is created with the ratio specified in Size: <i><width>:<height></i> An aspect ratio between 1:2 and 2:1 is recommended.
Fixed Width	Here the width is fixed, but the height varies depending on data. The width (= number of horizontal dots) is specified in the Size property.
Fixed Height	The height is fixed, but the width varies depending on data. The height (= number of vertical dots) is specified in the Size property.
Fixed Width Height	The width and height (number of dots) is fixed. That way the bar code size will not depend on the amount of data – but the data is limited to the maximum data capacity of that symbol. The width and height is specified in the Size property: <i><width>x<height></i>

Table 18: DotCode Size Mode

7.10.9 Structured Append Index

Sets the index of the current structured append symbol. This index indicates the order in which the data is joined after the reading/scanning process.

Supported range: 1 to 35.

7.10.10 Structured Append Total

Sets the total number of symbols in the structured append chain.

Supported range: 2 to 35.

7.11 Properties “GS1 Composite Symbology”

In this category, you can adjust the parameters specific for the *GS1 Composite Symbology*.

7.11.1 CC Type

Sets the 2D composite component in order to generate a GS1 Composite Symbology.

Value	Description
None (Default)	Composite Symbologies are disabled
Auto (CC-A/B/C)	Automatically choose the CC-A, CC-B or CC-C type depending on the length of the input data
CCA	Use composite component A (CC-A). CC-A is a variant of the MicroPDF417 symbology with a unique combination of row address patterns (RAP). It is the smallest variant of the 2-dimensional composite component. Up to 56 characters can be coded (also alphanumeric) with 3 to 12 rows and 4 columns.
CCB	Use composite component B (CC-B). CC-B is a subset of the MicroPDF417 symbology, which is identified by the code word 920. In Auto-mode, CC-B will be chosen automatically when CC-A has not enough capacity. CC-B encodes up to 338 Characters (alphanumeric) in 3 to 12 rows and 2 to 4 columns.
CCC	Use composite component C (CC-C). The CC-C structure is a PDF417 Symbol which is identified by the internal code word 920 (920 is the first code word after the symbol length indicator). The CC-C structure can be used as a 2D composite component of a UCC/EAN-128 Composite Symbol. It has the largest data capacity among the composite symbologies. It encodes numbers and alphanumeric characters with up to 2361 characters length in 3 to 30 rows. It uses up to 30 data error checking code columns.

Table 19: Composite Component Format

- ▶ You can add Composite Components to the following symbologies: EAN-8, EAN-13, UPC-E, UPC-A, GS1 DataBar family and GS1-128.
- ▶ CC-C is available for GS1-128 only!

7.11.2 Data Input for the GS1 Composite Symbology

If the composite component is enabled, the data for the 2D composite component has to be separated from the linear component with a vertical bar “|”.

Example: 1234567890123|CompositeData

If a symbology has a fixed data length (such as GS1 DataBar) the vertical bar is optional. All remaining characters (after the 14th digit) will be encoded into the 2D component automatically.

7.12 Properties “GS1 DataBar”

In this category, you can adjust the parameters specific for the *GS1 DataBar* symbology.

7.12.1 Number Of Segments per Row

For the *GS1 DataBar Expanded Stacked* symbology, you can adjust the number of data segments per row. Allowed are even values between 2 and 22 (-1 indicates the default value). This parameter influences the width-to-height ratio of the barcode symbol.

7.13 Properties “Han Xin Code”

Han Xin Code is a 2D matrix symbology, which is used for encoding large amounts of data and provides a special support for encoding Chinese characters (character set GB18030).

The default character set of Han Xin is Latin-1. Change the code page to GB18030 if you want to enable the optimization for Chinese characters.

7.13.1 Error Correction Level

Defines the error correction level.

Value	Description
L1	Lowest level (default). Data recovery capacity is approximately up to 8%.
L2	Up to 15%
L3	Up to 23%
L4	Highest level. Up to 30% data recovery capacity.

Table 20: Han Xin Code Error Correction Levels

7.13.2 Mask Pattern

Selects the mask pattern, which is applied to the barcode symbol. The goal of the mask pattern is to distribute the bar-space transitions evenly over the symbol in order to improve the readability.

Value	Description
Default	Selects the optimal mask pattern automatically (recommended).
Mask0...Mask3	Selects one of the mask patterns (0 to 3) fixed without analysis.

Table 21: Han Xin Code Mask Patterns

7.13.3 Shall Enforce Binary Encoding

If enabled (true), all input data is encoded in binary mode, otherwise the input data is analyzed and the most efficient mode is automatically selected.

For binary data, you also have to disable Code Page conversion (see 7.3.6).

7.13.4 Version (Size)

Indicates the symbol version (= matrix size) of the Han Xin Code. The symbol version has a direct effect on the data capacity.

Possible values: Default, Version 1 (23x32 dots) to Version 84 (189x189 dots).

If the version is set to Default, the version is selected automatically based on the amount of data.

7.14 Properties “MaxiCode”

MaxiCode is a fixed size (approximately 1 inch square) 2D barcode, which represents data by drawing hexagonal modules arranged around a circular center (finder pattern).

The internal data structure is regulated by different modes. For encoding shipment-tracking data, the United Parcel Service UPS® defined the Structured Carrier Message (SCM) mode. Standard (SEC) and Enhanced (EEC) error correction levels are available.

For UPS and SCM check out the additional information in the Barcode Reference (see Appendix A).

The actual amount of usable data depends on the mode, the error correction level, the number of special characters and whether numeric sequences are used or not (numeric sequences can be encoded with less space than ASCII data). The data capacity of one symbol is up to 93 characters.

With structured append you can divide larger quantities of data into several MaxiCode symbols – they are then re-joined by the scanner.

7.14.1 Mode

Selects the mode for the actual symbol. Default: Mode 4.

Value	Description
2	SCM Numeric ► Structured Carrier Message with 9 digits Postal Code
3	SCM Alphanumeric ► Structured Carrier Message with up to 6 alphanumeric characters Postal Code
4	Standard Symbol (no SCM): Encoding of numeric and alphanumeric characters. The symbol employs EEC in the primary message and SEC for the secondary message.
5	Full EEC – Like mode 4 but with maximum error correction (less data capacity).

Table 22: MaxiCode Compaction Modes

7.14.2 Preamble Date (0...99)

This is the value of the preamble year to be encoded in the MaxiCode symbol.

Possible values: 0 .. 99 (maximum 2 digits); Default: 96

7.14.3 Structured Append

Structured append is used for appending multiple MaxiCode symbols to one symbol chain. Therefore some additional header information (total number of barcodes, index) will be included in the barcode symbol.

You can enable Structured Append by setting index and sum to valid values. To disable structured append, set sum and index to -1.

7.14.3.1 Structured Append Index [1...8]

Specifies the actual index of the MaxiCode symbol in the symbol chain. The index is used for identifying the correct re-joining order.

7.14.3.2 Structured Append Sum [2...8]

Specifies the total number of MaxiCode symbols in the symbol chain.

7.14.4 Structured Carrier Message (SCM)

MaxiCode was originally developed by UPS® (United Parcel Service). The modes 2 and 3 for the Structured Carrier Message provide the additional data-fields *Service Class*, *Country Code* and *Postal Code*. These fields can be set also via escape sequences in the bar code data (for more information refer to the Barcode Reference, Appendix A).

7.14.4.1 Country Code [0...999]

Specifies the country code in the SCM (mode 2 or 3).

7.14.4.2 Postal Code

Specifies the postal-code in the SCM (mode 2 or 3).

- Mode 2: up to 9 digits can be specified.
- Mode 3: up to 6 characters (digits and uppercase letters) can be specified.

7.14.4.3 Service class [0...999]

Specifies the service class in the SCM (mode 2 or 3).

7.14.5 Undercut [0...100%]

The undercut influences the diameter of the hexagonal barcode elements. If set to -1, the internal default value (70%) is used.

7.14.6 Use Preamble

Enables the preamble mode, used in particular open system standards. Under "*Preamble Date*" the last two digits of a year can be entered. By default, the preamble date is not inserted.

The preamble can also be specified by escape sequences in the bar code data (see Barcode Reference, see Appendix A).

7.15 Properties "Micro QR Code"

The Micro QR Code is a small variant of the QR Code® with a reduced number of overhead modules and a restricted range of sizes. The maximum amount of data is 35 numeric, 21 alpha-numeric, 15 byte, or 9 Kanji characters (in conjunction with the lowest error correction level).

7.15.1 Mask Pattern

Sets the mask pattern. Default: The mask is selected automatically for optimal readability.

Note: The Micro QR-Code has only 4 mask patterns and not 8 like the QR Code.

7.15.2 Version (Size)

The Micro QR-Code has four different symbol sizes (M1-M4). The smallest version M1 is restricted to numeric data and error detection (no error correction), M2 may contain alphanumeric values, M3 and M4 may use the whole range of the QR-Code character sets (Bytes, Kanji).

7.16 Properties “PDF417”

PDF417 or “Portable Data File 417” is a two-dimensional (2D) stacked barcode symbology, which divides data content into graphical rows and columns.

For optimal readability, the bar height (row height) should be at least 3 times the module width. Depending on the available space, it is recommended to set the number of data columns to a fixed value - so that the barcode keeps a constant width.

The properties below are applied to PDF417, PDF417 Truncated and Micro PDF symbologies.

7.16.1 Encoding Mode

Choose the encoding mode of the barcode.

Value	Description
Default	Dynamic mode switching due to input data analysis. Depending on the input data, either “text”, “numeric” or “binary compaction” mode is used in order to keep the resulting symbol as small as possible.
Binary	Uses binary mode for encoding (no input data analysis) - recommended for binary data or zipped text data.

7.16.2 Error Correction Level

Sets the error correction level. Values between 0 and 8 are allowed.

If the symbol is distorted through surface damage, bad printing quality or dirt, the error correction information can help to reconstruct the full information contained in the PDF symbol. A higher error correction level adds more code words to the symbol - therefore the symbol will require more space for printing. Choose a higher level if you expect bigger damages of your label.

Value	Description
-1	Default The error correction level is set automatically (range 2 – 5) depending on the amount of input data.
0	Error recognition only (no error correction is possible).
1	Error correction. 4 code words are used for error correction information.
2	Error correction. 8 code words are used for error correction information.
:	:
8	Error correction. 512 code words are used for error correction information.

Table 23: PDF417 Error Correction Levels

7.16.3 Macro PDF417 Settings

Using Macro PDF417, large data files can be split into several data segments and encoded into individual symbols. In other symbologies, this method is called *Structured Append*.

The barcode differs from ordinary symbols in that they contain additional information in the so-called *Macro PDF417 Control Block*. The data for this block can be specified below.

For each bar code in the symbol chain, you have to specify

Mandatory

- Segment Index
The index of the actual symbol in the chain. Set this value to -1 if macro mode is disabled.
- Is Last Segment
Enable this flag for the last symbol in the chain.
- File Id
The file ID must be the same for all bar codes in the same symbol chain. This value must be empty if macro mode is disabled.

Optional

- Addressee
- Checksum (CCITT-16) (-1 if unused)
- File name
- File size (-1 if unused)
- Segment count (-1 if unused)
- Sender
- Time stamp (-1 if unused)

7.16.4 Micro PDF Settings

These settings apply for the MicroPDF417 symbology only.

7.16.4.1 Encoding Mode

Specifies how data is encoded when using Micro PDF417. In most cases the “Default” or the “Binary” mode is the best choice. Some decoders may not support all modes listed here - check with your scanner first.

Value	Description
Default	Dynamic mode switching due to input data analysis. Depending on the input data, either “text”, “numeric” or “binary compaction” mode is used in order to keep the resulting symbol as small as possible.
EAN-128	GS1-128 / EAN-128 emulation mode. Transmits]C1 or]L3. Use compaction for Application Identifier (AI) "01" + 14 digits.
Code128 Standard	Code-128 emulation mode. Transmits]C2 or]L4.
Code128 FNC2	Code-128 with FNC2 on first position will be emulated.
EAN-128 Linked	Linked GS1-128/EAN-128 emulation. Transmits]C1 or]L3. This mode links the MicroPDF symbol with a linear (1D) symbol. The linked symbol may be required for a successful scan. The symbol can be encoded with better compaction when using one of the following orders for Application Identifiers (AIs): <ul style="list-style-type: none"> ▪ date (AI 11, 13, 15 or 17) + lot number (AI 10) + other AIs (optional). ▪ date (AI 11, 13, 15 or 17) + serial number (AI 21) + other AIs (optional). ▪ date (AI 11, 13, 15 or 17) + other AIs (optional). Note: This mode is not used with GS1 Composite Symbology, which uses linked symbols as well.
Mode 05 Macro	The preamble [(> RS 0 5 GS precedes the barcode data.
Mode 06 Macro	The preamble [(> RS 0 6 GS precedes the barcode data.
CC-A	Uses Base-928 compaction and processes input data as byte array. Used for GS1 Composite Symbology.
CC-B	Uses binary compaction (Base-900). The barcode data is prefixed with a reserved code word. Used for GS1 Composite Symbology.

Table 24: Micro PDF417 Encoding Modes

7.16.4.2 Version

Specifies the size of the symbol in terms of code word columns and MicroPDF417 rows.

Default: The version is selected automatically, depending on the amount of code words needed.

7.16.5 Number Of Columns [1..30]

Defines the number of data columns for the actual PDF417 symbol. The start-, stop- and line-indicator columns are not taken into account.

- -1 (default) → The number of data columns is calculated automatically.
- 1 .. 30 → The number of columns will be fixed.

▶ You should not set both rows AND columns to a constant value!

7.16.6 Number Of Rows [3..90]

Defines the number of graphical rows for the actual PDF417 symbol.

- -1 (default) → The number of rows is calculated automatically.
- 3 .. 90 → The number of rows will be fixed.

▶ You should not set both rows AND columns to a constant value!

7.16.7 Row Column Ratio

Defines the ratio between the number of rows and columns in the symbol. If you don't set the rows and columns explicitly, you can influence the automatic row/column allocation with this ratio.

Empty (default): The row/column ratio is managed by the encoder.

Example:

- **3:2** → The ratio of rows to columns will be 3:2

7.16.8 Row Height [mm]

Sets the height of an individual row in mm.

If not specified (-1), the row height is calculated automatically depending on the bounding rectangle and the number of rows.

Some label specifications require a specific ratio between module width and row height. Example: If a ratio of 1:3 is required, you might set the module width to 0.254 and the row height to 0.762 mm.

7.17 Properties “QR Code”

A QR Code® is a 2-dimensional matrix symbology. It has a remarkable data capacity of up to 3000 ASCII characters or 7000 digits. The QR Code symbology is designed to be scanned quickly and easily (“QR Code” stands for “Quick Response Code”).

By default, the QR Code uses the Latin-1 character set. For Unicode (UTF-8), Chinese or Japanese you have to select another code page.

For typical mobile applications (like URL encoding or vCard), select UTF-8 for the codepage and set the error correction level to "L".

7.17.1 Error Correction Level

Defines the error correction level. A higher level allows you to recover more information in case of damaged symbols - but the data density increases and the data capacity decreases.

Value	Description
(L)ow	Lowest level. Data recovery capacity is approximately up to 7%.
(M)edium	Up to 15%
(Q)uartil	Up to 25%
(H)igh	Highest level. Up to 30%

Table 25: QR-Code Error Correction Levels

7.17.2 Format / Format Application Indicator

Here you can choose a code format suitable for your application. Depending on the format, specific code words may be added to the header section in the bar code.

Value	Description
Default	The standard format of QR-Code.
UCC/EAN	Special format defined by GS1 (UCC/EAN). Used for encoding so-called Application Identifiers. FNC1 is added at first position.
Industry	For special industry formats. If you choose this value, you have to fill in the Format Application Indicator (2 digits or 1 letter). It determines which industry format the barcode data corresponds to. FNC1 is inserted at second position.

Table 26: QR-Code Formats

7.17.3 Kanji Chinese Compaction

A QR-Code can compact dedicated Multi Byte character sets from 16-bit representation into 13-bit code words, which uses less space in the symbol. This property enables the compaction of Kanji or Simplified Chinese characters into 13-bit values.

If you use one of the available compaction modes, make sure that the selected Codepage is either Shift JIS X 0208 (Kanji) or GB2312 (Simplified Chinese). Also make sure that your decoder (scanner) can deal with these compaction modes.

Value	Description
Default	Default multi byte character compression. Depends on specified <i>Code Page</i> .
None	No multi byte character compression.
Kanji compaction	Enables Kanji character compaction. Input data must be supplied in the multi-byte character set Shift JIS X 0208 (see <i>Code Page</i>). Compaction of Kanji characters is done according to the ISO/IEC 18004 (and AIM ITS/97-001) specification.
Chinese compaction	Enables Chinese character compaction. Input data must be supplied in the multi byte character set GB2312 (see <i>Code Page</i>). Compaction of Chinese characters is done according to GB/T 18284-2000. Please note that this compaction mode is not supported by all decoders!

Table 27: QR-Code Compaction Modes

7.17.4 Mask Pattern

Selects the mask pattern, which is applied to the barcode symbol (XOR masking). The goal of the mask pattern is to distribute the bar-space transitions evenly over the symbol in order to improve readability of the barcode.

Value	Description
Default	Selects the mask pattern automatically (recommended).
Mask0..7	Selects one of the mask patterns (0 to 7) fixed without analysis. The readability of the barcode may suffer when using manual selection.

Table 28: QR-Code Mask Patterns

7.17.5 Structured Append

Structured Append can be used to split up a large block of data into several data segments (each one encoded into a separate QR Code) and restore it during scanning.

7.17.5.1 Structured Append Index [1...16]

A symbol identification number (index) must be assigned to each QR-Code symbol (value range from 1 to 16). The index indicates the order in which the data is joined after the reading/scanning process. Set the value to -1 if you don't use Structured Append.

7.17.5.2 Structured Append Parity [0...255]

QR-Code symbols in one chain are identified by the parity byte (identical in all symbols of a chain).

- ▶ The value of the parity byte depends on the barcode data for the complete chain. To calculate its value you have to use a separate function (not included in TBarCode Office).

7.17.5.3 Structured Append Sum [2...16]

The total number of chained QR-Code symbols must be specified here. A maximum of 16 symbols may be used within one chain. Set the value to -1 if you don't use Structured Append.

7.17.6 Version (Size)

Defines the version (= size) of the QR-Code symbol. Possible values range from "Version 1 21 x 21" to "Version 40 177 x 177" modules.

If the property is set to Default, the size is computed automatically based on the amount of required code words.



8 Licensing

8.1 License Types

Please check out www.tec-it.com/order for available license types and pricing.

8.2 Entering Your License Data

The license information has to be entered in the license dialog. To enter the license data, select *License* from the **TBarCode Office** panel. Usually the software is activated online (see 8.2.1):

- ▶ **In case online activation is not possible or you prefer manual activation:**
Please get in touch with us - we will be glad to send you the license data suitable for manual licensing (see 8.2.2) without Internet access.
- ▶ License keys for V10 will not work with V11 – you have to purchase an update first. Please contact us for pricing and update details.

8.2.1 Online Activation Using an Activation Key

The *online* product activation (❶) is the preferred licensing method if you received an *online activation key* from TEC-IT.

The screenshot shows a 'Licensing' dialog box with two tabs: 'Online' (selected, marked with ❶) and 'Manual'. The 'Online' tab contains the following fields and controls:

- A text area for the activation key, labeled 'Activation Key (XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX):' (marked with ❷).
- A text field for 'Company:'.
- A dropdown menu for 'Country:'.
- Text fields for 'ZIP:' and 'City:'.
- A text field for 'Email address to send your license information to:' (marked with ❸).
- Buttons for 'Privacy...', 'Send', and 'Cancel'.

Figure 18: Licensing – Online Activation

In the topmost field (❷) you have to enter your activation key. All fields are required. A license certificate is sent to the given *Email address* (❸) automatically.

Confirm by clicking "Send". A message informs you about the successful activation. In case of problems or errors, please get in touch with TEC-IT.

8.2.2 Manual Licensing

Manual licensing is the alternative method for licensing (e.g. if your system has no Internet connection). Select *Manual* licensing (4) and enter the license data as provided by TEC-IT.

- ▶ **Please enter the license data exactly as you received it from TEC-IT!**
Spacing and upper/lower case letters are to be considered. To avoid typographical errors, please insert the data using “copy and paste” from the email containing your license data whenever possible.
- ▶ **Single licenses**
If you purchased a Single License, you need to provide the so-called “*System ID*” of the target computer. You can find the *System ID* in the licensing dialog (5) - see below.

Figure 19: License Dialog – Manual Licensing

Perform the following steps to enter the license data:

1. On the top of the dialog you find the *System ID* (5) of your computer.
2. For field “*Product*” please choose between “TBarCode Office 1D (Linear Codes)” and “TBarCode Office 2D (1D + 2D Codes)”.
3. In the field “*Licensee*” enter the name of the license holder.
4. In field “*Kind of License*”, please select the kind of license that you have purchased. You can choose among:
 - Single
 - Site
 - Enterprise
5. The field “*Number of Licenses*” should be filled with the number of licenses that you purchased.
6. In the field “*Your License-Key*” enter the license key exactly as received from TEC-IT.
7. Confirm the dialog with *OK*.

In the TBarCode Panel click *Refresh all Barcodes* to recreate the bar codes in your Word or Excel document. In Excel press *SHIFT* + click *Refresh all Barcodes* to force a redraw of all bar codes.

9 Contact and Support Information

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Appendix A: Related Downloads

A.1 For Software Developers

Bar codes created by TBarCode Office 11 cannot be changed or manipulated directly in VBA. However - for software developers we offer a VBA programmable Barcode ActiveX Control - see our product [TBarCode SDK](#).

A.2 Barcode Reference

The document "Barcode Reference" provides an overview over supported barcode types and gives additional information on how to use them.

The following issues are discussed:

- Supported Barcode Symbologies
(with detailed information on each barcode type)
- Check Digits
(general information and available check digits methods)
- Print Ratio and Ratio Hints (or Ratio Format)
- Format Strings
- Escape Sequences and Control Characters
- Application Identifiers
- MaxiCode and UPS standards
- And more...

The Barcode Reference is available as separate document on the TEC-IT web-site www.tec-it.com
► Support ► Knowledge Base.

The direct URL is as follows:

https://www.tec-it.com/download/PDF/Barcode_Reference_EN.pdf.



Appendix B: FAQ

The frequently asked questions are located on our web page

- www.tec-it.com/FAQ
- www.tec-it.com/support/faq/tbarcode-office.aspx

Examples of the topics in the FAQ:

- Application Error in Word or Excel
- TBarCode Office Listed as Inactive Application-Add-In
- TBarCode Office Listed as Disabled Application-Add-In
- Add-In Not Loaded for Terminal Server Users with Restricted Permissions
- Add-In Is Only Available for the User Who Has Run the Setup
- Installing Office Customization Error During Startup of Word/Excel
- Repairing a Corrupt ClickOnce Application Cache
- Silent Setup Without User Interaction
- No Barcode Add-In available on Windows XP
- Crash in OSF.DLL When You Close Word or Excel
- Inserting Barcodes into Microsoft Word Documents
- Inserting Barcodes into Serial Letters
- Video: Barcodes in Word Documents and Serial Letters
- How To: Create a Swiss QR Code
- How To: Create a Barcode Using the vCard Format
- Mail Merge Errors
- Barcode Data Doesn't Change When Using Mail Merge
- Scaled or Cropped EMF Barcodes with Remote Desktop
- No Barcode Visible / Cropped Barcode
- Barcode Control Blocked or Barcode Not Updated
- Barcode Shows "Adjust Properties"
- How to: Use Microsoft Word Programmatically with IIS Applications
- How Can I Link Multiple Cells into a Barcode?
- Inserting a Single Barcode into Microsoft Excel
- How to Create a Barcode List
- Video: Creating Barcodes and Barcode Lists in Excel
- No Barcode Visible / Cropped Barcode
- Print Preview or Printing Changes the Barcode Position
- Barcode Is Printed with a Different Size than in Preview
- Wrong Aspect Ratio with 2D Matrix Codes
- Scaled or Cropped EMF Barcodes with Docking Station
- Scaled or Cropped EMF Barcodes with Remote Desktop
- Barcode Size Changes on a Different PC
- Which Product Is Better Suited to My Needs- the SDK or the Add-In?
- How Can I Auto-Update the Barcodes Once a Cell Is Changed?
- Excel Scrolls Always Down to Barcode Control
- Excel Not Responding, Freezes or Stops Working

If you do not find the required answers, please feel free to contact our support team: <mailto:support@tec-it.com>.

