

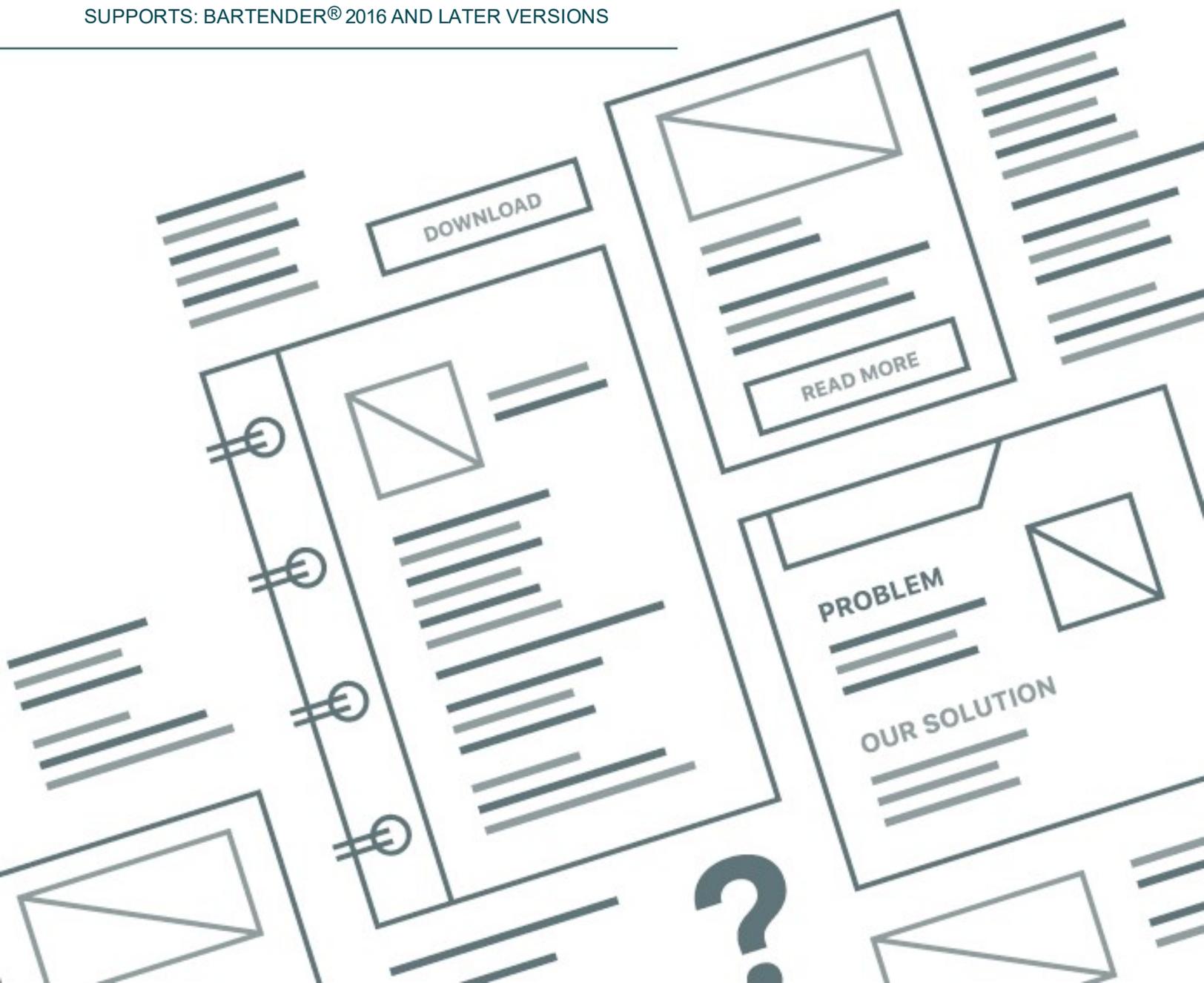
# Using International Characters in BarTender<sup>®</sup>

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HOW TO READ DATA AND PRINT CHARACTERS FROM  
INTERNATIONAL LANGUAGE AND WRITING SYSTEMS

SUPPORTS: BARTENDER<sup>®</sup> 2016 AND LATER VERSIONS

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## Overview

With the built-in international character support that BarTender provides, you can add international characters to your design and encode them into barcodes or RFID tags on your template. When you design items for a single locale, you can configure the format (or appearance) of information that might vary between regions, such as date, time, currency, numbering, and so on.

By using BarTender, you can also globalize your design and print international materials by inserting text in multiple languages. For example, the following item illustrates how BarTender can be used with many locales with its built-in Unicode support.



### BarTender Unicode Support

Unicode is a universal character encoding standard that defines the basis for the processing, storage and interchange of text data in any language. Unicode acts as a single code page that represents every character in every language in the world. With its full-system Unicode support, BarTender provides a way to read and print almost any international character or symbol and addresses every aspect of data processing and data handling, so that you can do the following:

- Combine text from multiple languages into a single text object or data source
- Import data from databases in which the language varies from field to field and from record to record
- Take advantage of printer-based Unicode fonts for high-performance printing in multiple languages
- Access files, printers and servers whose names, paths and network locations contain international characters
- Print subscript and superscript characters for chemical formulas, footnotes, mathematical equations, and so on

## Understanding International Character Support

Every language in the world uses a specific script that is based on the characters in that language. A *script* is a writing system that includes a set of symbols and the rules for how to put them together into meaningful words or sets. For example, the Western script has a rule that the symbols are read from left to right, while the Arabic script has a rule that the symbols are read from right to left and that different versions of a symbol must be used depending on whether the symbol is at the beginning of a word, at the end of a word, or in between words.

To use more than one language in a single text object, you must choose a font that supports all the languages and scripts that you want to include.

### Fonts

A *font* is a set of symbols, called glyphs. For most fonts, the glyphs share common design elements so that they look visually compatible with each other. The common design elements of a font are known as the *typeface* of the font, and the font is usually named after its typeface.

#### Resident and downloaded fonts

When you use a TrueType or OpenType font for a text object, the text area must be sent as an image to your printer each time the item is printed. Images are large, and they take more time to send to a printer than simple text data does. But, depending on which international script you need, you might be able to use one of the following methods to avoid the performance loss that comes from having to transmit the text object as an image:

- Use a font that is resident in the printer
- Use a downloaded font

For more information about how to optimize print performance, refer to the *Optimizing Print Performance* technical document:

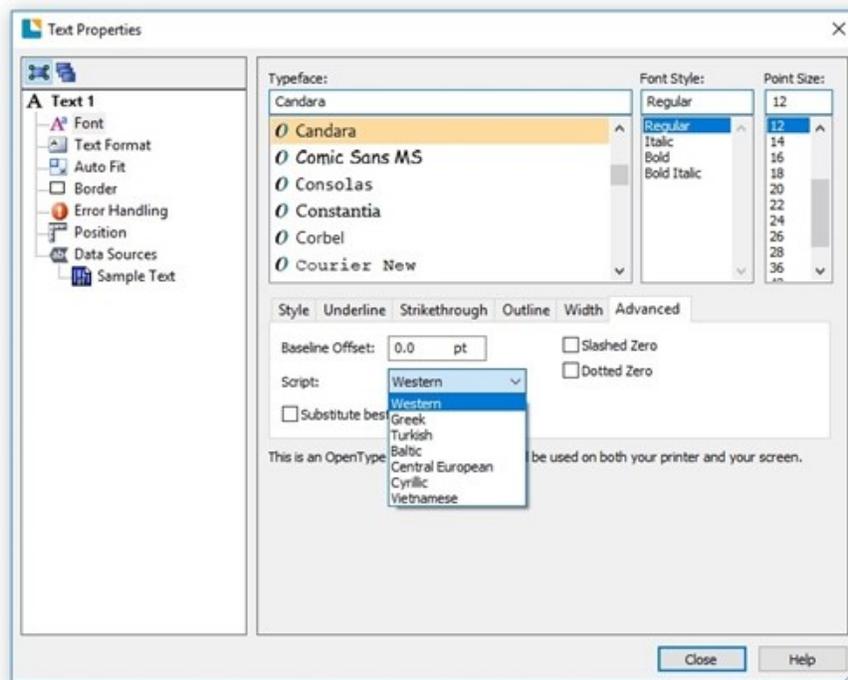
<https://www.seagullscientific.com/resources/white-papers/>

### Scripts

Each font includes one or more scripts that can be used with it. These scripts determine which languages are supported by the font. The script that you select also defines the language rules that are used for line breaking and directionality (whether the language is read from left to right or from right to left).

Some fonts, including Arial, include glyphs from more than one script. Others, like Andalus, have glyphs from only one script. The Arial Unicode MS font has glyphs for all major languages and many minor languages—over 50,000 glyphs in all.

In BarTender, the supported scripts for a font are listed on the **Advanced** tab of the **Font** property page. To determine which script you need for the language that you want, refer to [Appendix A: Languages, Encodings and Scripts](#) in this technical document.



If you cannot find any font that supports the languages that you want, then you may need to install additional fonts or configure your computer to support your language. For more information about Windows configuration, refer to [Appendix B: Configuring Windows](#) in this technical document.

## Asian Characters

BarTender supports the entry, reading and printing of a wide selection of Asian characters.

Each Asian language has unique line breaking rules that define how to wrap text. These rules include the characters that cannot start or end a line and characters that should not be split into two lines. By selecting the correct script in BarTender, you can ensure that the correct language rules are used across the text objects in your document.

There is a large number of less frequently used Asian characters that are defined in 16 additional “planes” that can represent even more Unicode characters. Whether these supplementary characters are entered at the keyboard or read from a database, BarTender displays and prints them as easily as any other characters.

## Writing Systems that Read from Right to Left

Languages such as Hebrew and Arabic that are read from right to left raise issues that are related to reading order. There are two senses in which text can have a reading order. Each language has an inherent reading order and, in text that mixes languages, there is a reading order for the separate runs of characters from each language.

Use BarTender to set the reading order for each individual text object in your design. When you use a single text object that has multiple languages, you can also separate each language into a separate

data source. This way, you can specify a separate reading order for each run of text in your text object to eliminate possible readability issues for the text on your items. For more information, refer to [Specifying Reading Order](#) in the BarTender help system.

## Entering International Text Into Text Objects

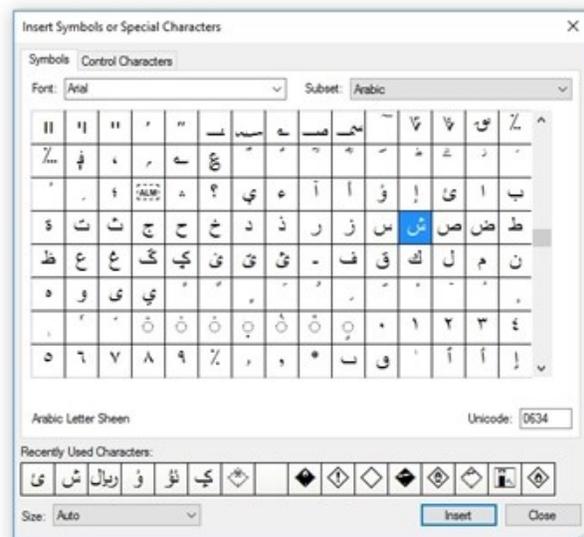
In BarTender, text objects can get their data from a variety of different sources. You can enter the data manually, draw it from a database or link it to the date and/or time on your printer. No matter which data source you use, you can rely on BarTender to accurately display characters from any number of languages that are supported by the fonts and scripts that are available on your computer.

When you enter data manually into the object or to import your data from a database, you might find the following tips helpful.

### Using the Insert Symbols or Special Characters Dialog

You can use the **Insert Symbols or Special Characters** dialog to insert characters into a text object on your template. To do this, follow these steps:

1. On the BarTender **Text** menu, click **Normal** or **Normal Wrapped**, and then click the location on your template where you want to place the text object.
2. Double-click the text object or click **Properties** on the text object's context menu to open the **Text Properties** dialog.
3. In the left navigation pane, click the object's data source to open the **Data Sources** property page.
4. Click the **Data Source** tab.
5. At the right of the **Embedded Data** field, click  to open the **Insert Symbols or Special Characters** dialog.
6. Click the **Symbols** tab.
7. In the **Font** list, select the font family that you want. Note that some fonts are language-specific, and not all fonts support all languages.
8. Optionally, use the **Subset** list to select a specific subset of characters within the character list.
9. Click the character that you want to insert into your document.
10. Click **Insert**. The character is inserted into the text box.
11. Click **Close**.



For more information, refer to the [Insert Symbols or Special Characters Dialog](#) topic in the BarTender help system.

### Using the Windows Character Map

If you are using an older version of BarTender or are entering characters into objects that do not support the **Insert Symbols or Special Characters** dialog, you can use the Windows Character Map

instead. To do this, follow these steps:

1. In Windows, open the **Start** menu.
2. Run `charmap.exe`. The **Character Map** dialog opens.
3. In the **Font** list, select a font that supports the characters that you need.
4. Click to select the **Advanced view** check box to expand the bottom of the **Character Map** dialog.
5. Leave the **Character set** option set to **Unicode**.
6. Optionally, use the **Group by** list and resulting dialog to narrow down your selection of characters.
7. Locate and then click the character that you want to add, and then click **Select** to add the character to the **Characters to copy** box. Repeat this step as many times as needed.
8. Click **Copy** to place the characters on the Windows clipboard.



In BarTender, follow these steps:

1. Open your BarTender document.
2. Click the text box where you want to add the characters.
3. On the **Edit** menu, click **Paste**. Alternatively, press `Ctrl+V`.

## Using the Keyboard

Standard keyboards, which typically have 100-110 keys each, have been developed in every region of the world. It is always easiest to enter the international characters that you need directly from your region's standard keyboard when you can, because this requires no configuration of either BarTender or Windows.

Sometimes one or more of the keys on a standard keyboard are directly assigned to an international character. For example, the standard 103-key keyboards that are found throughout Europe and North America have keys for the left and right angle bracket characters (< and >), which can be used to enter the French quotation marks (<< and >>).

You can also enter international characters into a BarTender text object or data entry control by holding down the `Alt` key while using the numeric keypad to enter a number from 128 to 255. The character that appears depends on the keyboard that you use.

### Re-mapping your keyboard

If you have a lot of international text to enter, you might prefer to temporarily turn your keyboard into one that is designed for use with an international language. Windows can re-map your keys to international characters in a way that closely matches the standard keyboard of the international region.

To enable this re-mapping feature, you must first follow the steps in [Appendix B: Configuring Windows](#) in this technical document.

For information about how to re-map your keyboard, refer to your Windows documentation.

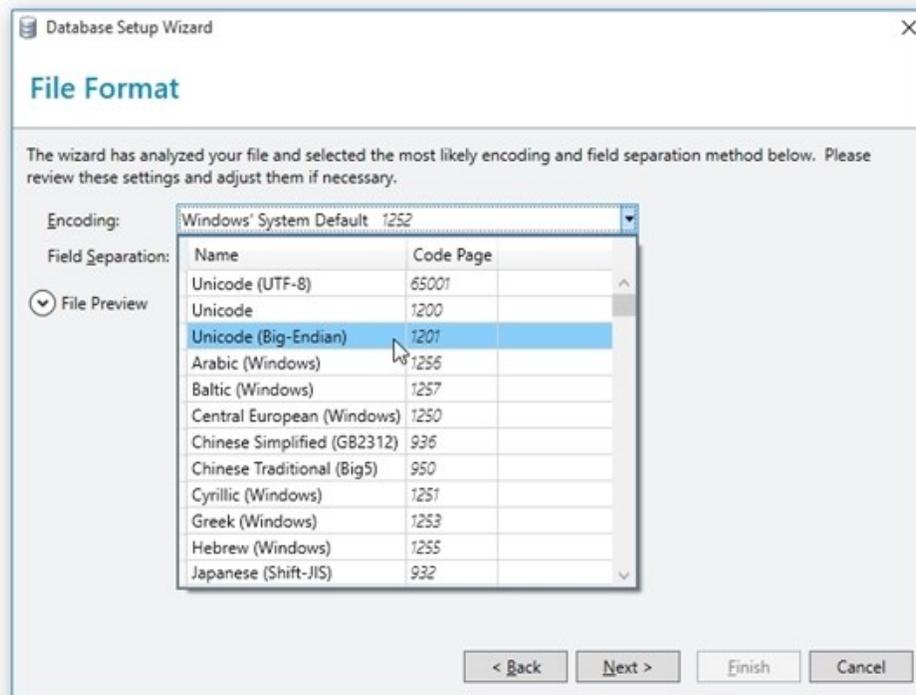
## Reading International Characters from a Database

BarTender can read data in multiple languages from a database and display it in a linked object on your template. When you connect to your database, many of the BarTender settings remain the same as a database in your native language, but for text files, you might need to make a few changes to the configuration.

For more information about how to connect to a database, refer to [Reading Data from Databases](#) in the BarTender help system.

### International text files

To read data from international text files, use the Database Setup wizard just as you would with any other text file. On the **File Format** screen, click one of the three Unicode options from the **Encoding** list. This ensures that there is virtually no limit to the variety of languages that can be used in the database.



### International OLE DB and ODBC databases

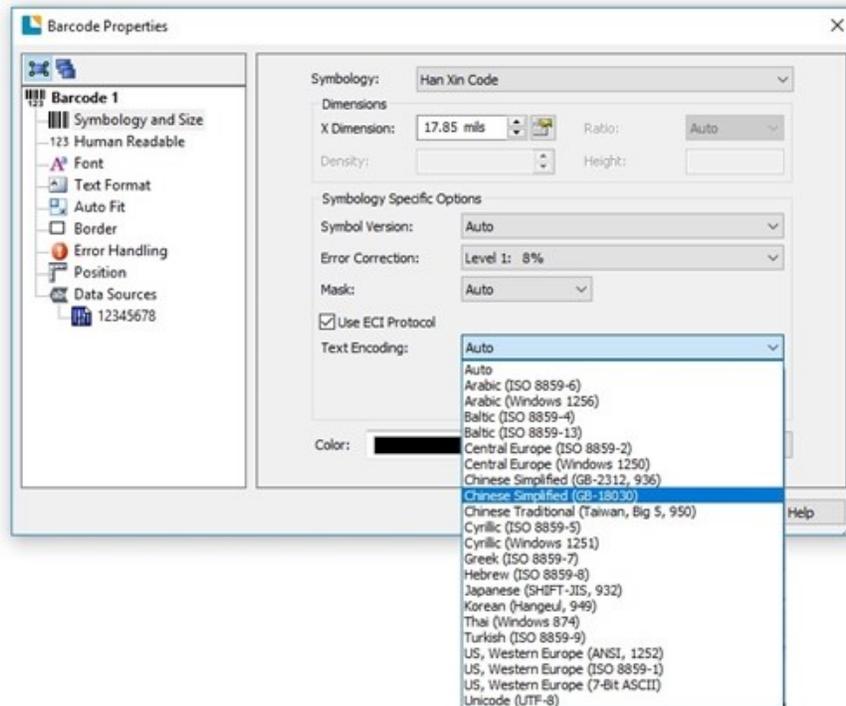
No changes in your Windows settings are required to read international character data from an OLE DB or ODBC database. No matter what language Windows is using, all of your data is imported to the template correctly, and there is virtually no limit to the variety of writing systems that can be used in the database.

## Encoding International Characters in Barcodes

Every barcode that you add to your template has a unique specification that defines how the barcode encodes its data. This specification, called a *symbology*, is the encoding scheme that is used to express numerical and character data with a pattern in a barcode. Linear, or one-dimensional (1-D), symbologies (such as Code 128) rely on bars and spaces to encode the data, while two-dimensional (2-D) symbologies (such as Data Matrix or PDF417) use dots or squares and spaces. The arrangement of these basic elements is defined by the type of symbology that is in use.

Some symbologies natively support encoding of international characters. If you need to encode characters from multiple languages in a barcode, first choose a symbology that fits your languages and the characters that you need to include.

In BarTender, you can find a list of supported character sets on the **Symbology and Size** property page under **Text Encoding** for a barcode object. If this option is not available, then the selected symbology does not support international characters.



### Using Unicode Data

Barcodes do not directly accept Unicode-formatted data. Therefore, if Unicode-formatted data is passed to a barcode object from, for example, a database or a data entry control, it must first be converted to an older byte-oriented encoding before it is expressed as a barcode. BarTender usually converts such data to the ANSI 1252 (Western languages) encoding. Unicode characters that have no equivalent in the ANSI 1252 encoding are replaced with "0xFF". Depending on the symbology, this code might be ignored or it might be replaced with a zero.

Some parts of the data stream for Data Matrix, QR Code and Aztec Code barcodes might be converted to an encoding other than ANSI 1252. For more information, refer to the documentation for each of these barcodes in the Seagull Scientific *Barcode Guide*:

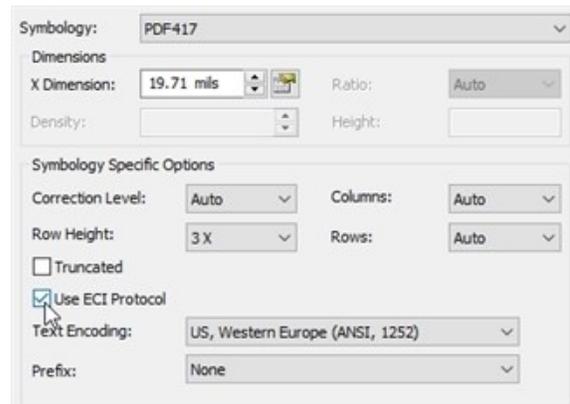
<https://barcodeguide.seagullscientific.com/Content/gettingStarted.htm>

## ECI Protocol

The Extended Channel Interpretation (ECI) standard specifies a protocol for adding escape sequences to data. BarTender can use the ECI protocol to encode text into a barcode by using various international character sets or Unicode (UTF-8).

The following symbologies support the ECI protocol:

- Han Xin Code
- MicroPDF417
- PDF417



The screenshot shows the BarTender software interface for configuring a PDF417 barcode. The 'Symbology' is set to 'PDF417'. Under 'Dimensions', the 'X Dimension' is 19.71 mils, 'Ratio' is Auto, and 'Height' is empty. Under 'Symbology Specific Options', 'Correction Level' is Auto, 'Columns' is Auto, 'Row Height' is 3 X, and 'Rows' is Auto. The 'Truncated' checkbox is unchecked, and the 'Use ECI Protocol' checkbox is checked. The 'Text Encoding' is set to 'US, Western Europe (ANSI, 1252)' and the 'Prefix' is set to 'None'.

## Formatting According to Locale

Different countries process data such as time, date, numbers and currency differently. For example, in the United States, a standard date format is mm/dd/yy. However, in Austria, dates are formatted as d.m.(yy)yy, and in Thailand, dates are formatted according to the Buddhist Era calendar, which is entirely different from the Common Era calendar that is used by most Western countries.

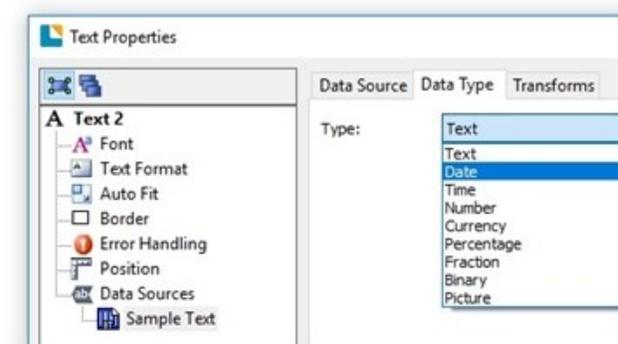
In BarTender, you can format your text according to a locale (country or region).

### About Data Types

Each data source in BarTender has a *data type* associated with it. The data type specifies the kind of data that the data source represents, such as text, number or currency. When you select a specific data type, you can then configure it to specify the formatting style by country and/or region by using the **Locale** option. To do this, follow these steps:

1. Open the **Properties** dialog for the text object that you want to format.
2. In the left navigation pane, click the data source that you want.
3. Click the **Data Type** tab.
4. In the **Type** list, select the type of data that you want to format. You can format the following data types by locale:

<b>Date</b>	<b>Currency</b>
<b>Time</b>	<b>Percentage</b>
<b>Number</b>	<b>Fraction</b>

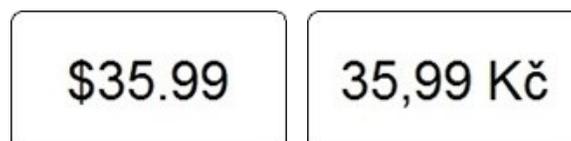


5. In the **Locale** list, click the locale that you want.
6. In the **Format** list, click the formatting that you want.
7. Click **Close** to apply your changes and return to your template.

### Example

Suppose that you are creating price tags that will be used in Czechia. The price needs to be formatted appropriately for the native Czech format. By setting the locale, you can modify how the price appears on your template without ever changing the text.

The following image illustrates how a price of 35.99 is formatted for the United States (left) and Czechia (right). Only the **Locale** setting in BarTender changed.



## Appendix A: Languages, Encodings and Scripts

This table displays pre-Unicode encoding for the world's major languages. Also listed is the name of the script that each language uses.

Language	Encoding	Script
Arabic	1256	Arabic
Bulgarian	1251	Cyrillic
Chinese (Simplified)	936	Chinese (Simplified)
Chinese (Traditional)	950	Chinese (Traditional)
Chinese (Hong Kong)	950	Chinese (Traditional)
Croatian	1250	Central European
Czech	1250	Central European
Danish	1252	Western
Dutch	1252	Western
English	1252	Western
Estonian	1257	Baltic
Finnish	1252	Western
French	1252	Western
German	1252	Western
Greek	1253	Greek
Hebrew	1255	Hebrew
Hungarian	1250	Central European
Italian	1252	Western

Language	Encoding	Script
Japanese	932	Japanese
Korean (Hanja)	950	Chinese (Traditional)
Korean (Hangul)	949 or 1361	Hangul or Korean
Latvian	1257	Baltic
Lithuanian	1257	Baltic
Norwegian	1252	Western
Polish	1250	Central European
Portuguese (Portugal)	1252	Western
Portuguese (Brazil)	1252	Western
Romanian	1250	Central European
Russian	1251	Cyrillic
Slovak	1250	Central European
Slovenian	1250	Central European
Spanish	1252	Western
Swedish	1252	Western
Thai	874	Thai
Turkish	1254	Turkish
Vietnamese	1258	Vietnamese

## Appendix B: Configuring Windows

### *Installing Windows Input Support for International Languages*

You can turn your keyboard into an international language keyboard or add Windows support for inputting international languages with special on-screen tools.

**To install Windows support for international languages (Windows 10):**

1. Click **Start**, click **Settings**, and then click **Time and Language**.
2. In the left navigation pane, click **Region and language**.
3. Under **Languages**, click **Add a language**.
4. Enter the language that you want in the search field, or select the language in the list. Repeat this step as needed for the regional language variant that you want.
5. On the **Region and language** page, click **Additional date, time, and regional settings**.
6. On the **Clock, Language, and Region** page, click **Change input methods** under **Language**.
7. Click **Options** for the language that you want.
8. On the **Language options** page, under **Windows display language**, click to download and install the language pack, as needed.
9. On the **Language options** page, under **Input method**, click **Add an input method**.
10. On the **Input method** page, click the keyboard type that you want to add, and then click **Add**.
11. On the **Language options** page, click **Save**.

**To install Windows support for international languages (Windows 8 and earlier versions):**

1. On the Windows **Start** menu, click **Control Panel**. (If you are using the “Classic Start menu”, you must first click **Settings**.)
2. Click the **Clock, Language, and Region** link. (Skip this step if you are using the “Classic Start menu”.)
3. Click the **Region and Language** link. The **Region and Language** dialog opens.
4. Click the **Keyboards and Languages** tab.
5. Click **Change Keyboards**. The **Text Services and Import Languages** dialog opens.
6. Click the **Default Input Language** list. If the language that you want is not listed there, click **Add**. The **Add Input Language** dialog opens.



If the language is not listed in this dialog, then you must install support for it.

7. Click **+** next to the language that you want to add.
8. Click **+** next to **Keyboard**.

9. Click to select the check box for the language that you want to add. If you want to keep your keyboard's default language as well, click to select that check box too.



10. Click **OK** to close each of the open dialogs.
11. If you are instructed to restart the computer or to insert the Windows CD, do so, and then follow the instructions.
12. When the installation is complete, you can reopen BarTender and your template and begin to enter international text by using the keyboard. For more information, refer to [Re-mapping your keyboard](#) in the "Entering International Text Into Text Objects" chapter of this technical document.

### **Windows Support for Additional Display Languages**

Windows is installed with support for the languages that you are most likely to need, but you might need to install support for additional languages.

You can add display languages by installing additional language files. When you install language files, you can view wizards, dialog boxes, menus, help topics, and other items in Windows in a different language.

There are two types of language files, as follows:

- Windows Multilingual User Interface Pack (MUI)
- Windows Language Interface Pack (LIP)

For more information, refer to the following Microsoft web pages:

- "Multilingual User Interface"  
<https://docs.microsoft.com/en-us/windows/desktop/Intl/multilingual-user-interface>
- "Add languages to Windows images"  
<https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/add-language-interface-packs-to-windows>

## Related Documentation

### Technical Documents

- *Getting Started with BarTender*
- *Optimizing Print Performance*

To view and download technical documents, visit:

<https://www.seagullscientific.com/resources/white-papers/>

### User Guides

- *Getting Started with BarTender*  
<https://support.seagullscientific.com/hc/categories/200267887>

### BarTender Help System

- [Specifying Reading Order](#)
- [Font Property Page](#)
- [Data Sources Property Page](#)

### Other Resources

Please visit the BarTender website at <https://www.seagullscientific.com>.

Please visit the Seagull Scientific *Barcode Guide* at <https://barcodeguide.seagullscientific.com/Content/gettingStarted.htm>.

- [Aztec Code](#)
- [Data Matrix](#)
- [Han Xin Code](#)
- [MicroPDF417](#)
- [PDF417](#)
- [QR Code](#)

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