BarTender®

BY SEAGULL SCIENTIFIC

Using International Characters in BarTender

How to Read Data and Print Characters
from almost every Language and
Writing System in the World

Contents

Overview

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

Using BarTender, you can also globalize your design and print international materials, by inserting text in multiple languages. The following item, for example, illustrates how BarTender can be used with many locales in mind with its built-in *Unicode support*.

BarTender's Unicode Support

Unicode is a universal character encoding standard that defines the basis for processing, storage and interchange of text data in any language. Think of Unicode as a single, giant code page, designed to represent every character in every language in the world. With full-system Unicode support, BarTender provides a way to read and print almost any international character or symbol.

By having full-system Unicode support, BarTender addresses every aspect of data processing and data handling, letting you:

- 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 record to record.
- Take advantage of printer-based Unicode fonts for high performance printing with multiple languages.
- Access files, printers and servers whose names, paths and network locations contain any international characters.
- Print subscript and superscript characters for chemical formulas, footnotes, mathematical equations, etc.

Understanding International Character Support

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

In order to use more than one language in a single text object, you must choose a font that supports all the languages and scripts you wish 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, ordinarily the text area must be sent as an image to your printer each time the item prints. Images are large and they take more time to send to a printer than simple text data. But, depending on which international script you need, there may be ways you can avoid the performance loss that comes from having to transmit the text object as an image:

- Use a font resident in the printer.
- Use a downloaded font.

For more information on optimizing print performance, refer to the **Optimizing Print Performance** white paper:

https://www.seagullscientific.com/support/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. The font Arial Unicode MS 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. Refer to Appendix A to determine which script you need for your desired language(s).
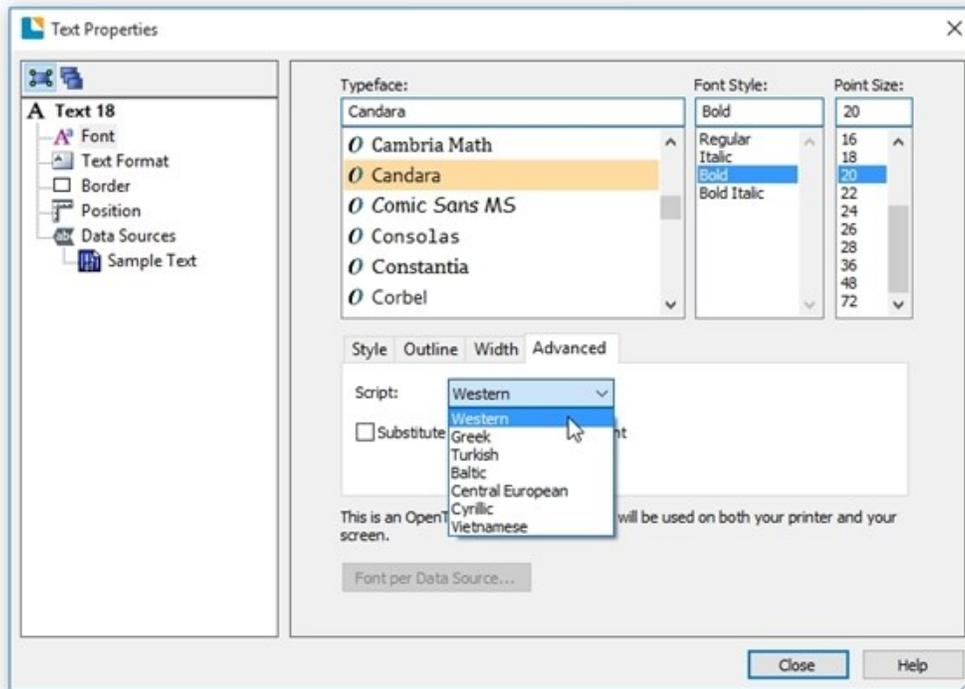
If you cannot find any font that supports the needed languages, then you may need to install additional fonts or configure your computer to support your language. Refer to Appendix B for more information on Windows configuration.

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 are not allowed to start or end a line, as well as 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 are a large number of less frequently used Asian characters that are defined in 16 additional "planes" available for representing even more Unicode characters. Whether they were entered at the keyboard or read from a database, BarTender will display and print these supplementary characters as easily as any other characters.

Writing Systems that Read Right to Left

The existence of languages, like Hebrew and Arabic, that read from right to left raises issues 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.

BarTender lets you set the reading order for each individual text object in your design. When using a single text object with multiple languages, you can also separate each language into a separate data source. This lets you 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 BarTender's help system.

Entering International Text Into Text Objects

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

If you decide to type in your data directly into the object or import your data from a database, you may find the following tips helpful.

Using the Insert Symbols or Special Characters Dialog

The **Insert Symbols or Special Characters** dialog enables you to insert characters into a text object on your template. To insert characters using the **Insert Symbols or Special Characters** dialog:

1. From the BarTender **Text** menu, select **Single Line** or **Multi-line**.
2. Click on your template to place the text object.
3. From the text object's context menu, select **Properties** to open the **Text Properties** dialog.
4. In the left Navigation pane of the dialog, click on the object's data source to open the **Data Sources** property page.
5. Click the **Data Source** tab.
6. At the right of the **Embedded Data** field, click Ω to open the **Insert Symbols or Special Characters** dialog.
7. Ensure that the **Symbols** tab is selected.
8. From the **Font** dropdown list, select the font family that you want. Note that some fonts are language-specific, and not all fonts support all languages.
9. Optionally, use the **Subset** dropdown list to jump to a specific subset of characters within the character list.
10. Click the character you want to insert into your document.
11. Click **Insert**. The character is inserted into the text box.
12. Click **Close** to close the **Insert Symbols or Special Characters** dialog.
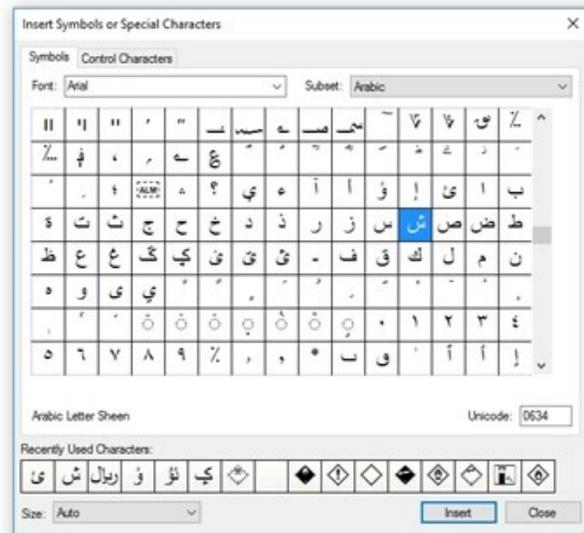
For more information, refer to the Insert Symbols or Special Characters Dialog topic in the BarTender help system.

Using the Windows Character Map

If you are using an older version of BarTender or are entering characters into objects that don't support the **Insert Symbols or Special Characters** dialog, you can use the **Windows Character Map** instead. To insert characters using the **Windows Character Map**:

1. Open the Windows **Start** menu.
2. Run `charmap.exe`. The **Character Map** opens.
3. Use the **Font** dropdown list to select a font that supports the character(s) you need.
4. Enable the **Advanced view** check box to expand the bottom of the **Character Map** window.
5. Leave the **Character set** at **Unicode**.
6. Optionally, use the **Group by** dropdown list and resulting dialog to narrow down your selection of characters.
7. Locate the character you want to add and click on it to highlight it.
8. Click **Select** to add it to the copy box. If you need more than one character in a row, repeat Steps 7 and 8 as needed.
9. When all the characters you need are in the **Characters to copy** box, click the **Copy** button to place them on the Windows clipboard.
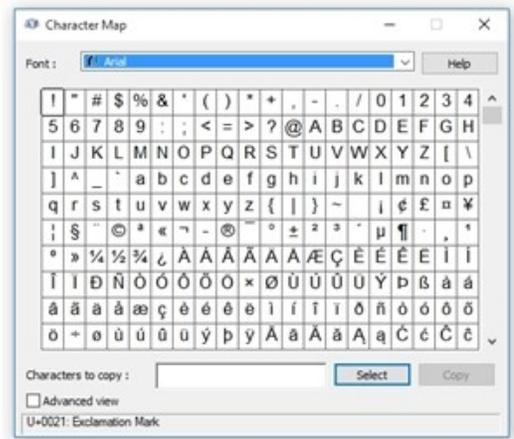
In BarTender:

1. Open your BarTender document.
2. Click once inside of the text box where you want to add the characters. The text inside of the box will be highlighted.
3. From the **Edit** menu, select **Paste** to add the characters. Alternatively, press `Ctrl+V` on your keyboard.

Click the **Help** button in the **Character Map** window for detailed information about any aspect of the Character Map.

Using the Keyboard

Standard keyboards, typically with 100-110 keys each, have been developed in every region of the world. It is always easiest to enter the international characters 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 is directly assigned to an international character. For example, the standard 103-key keyboards found throughout Europe and North America have keys for the angle brackets "<" and ">" that can be used to enter 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 type a number from 128 to 255. When you release the Alt key, a character will appear. The character that appears will depend on the keyboard in use.

Re-mapping Your Keyboard

If you have a lot of international text to enter, you may prefer to temporarily turn your keyboard into one designed for use with an international language. Of course, Windows cannot add or remove physical keys on your keyboard, but it 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 under the section Installing Windows Input Support for International Languages.

For instructions on re-mapping your keyboard, see Windows documentation.

Reading International Characters from a Database

BarTender is capable of reading data in multiple languages from a database, and displaying it in a linked object on your template. When connecting to your database, keep the following considerations in mind. Many of BarTender's settings remain the same as a database in your native language, but for text files, you may need to make a few configurations, as discussed below.

For more information on connecting 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. But when you come to the **File Format** screen, select one of the three Unicode options from the **Encoding** dropdown list. This will ensure that there is virtually no limit to the variety of languages that can be used in the database.
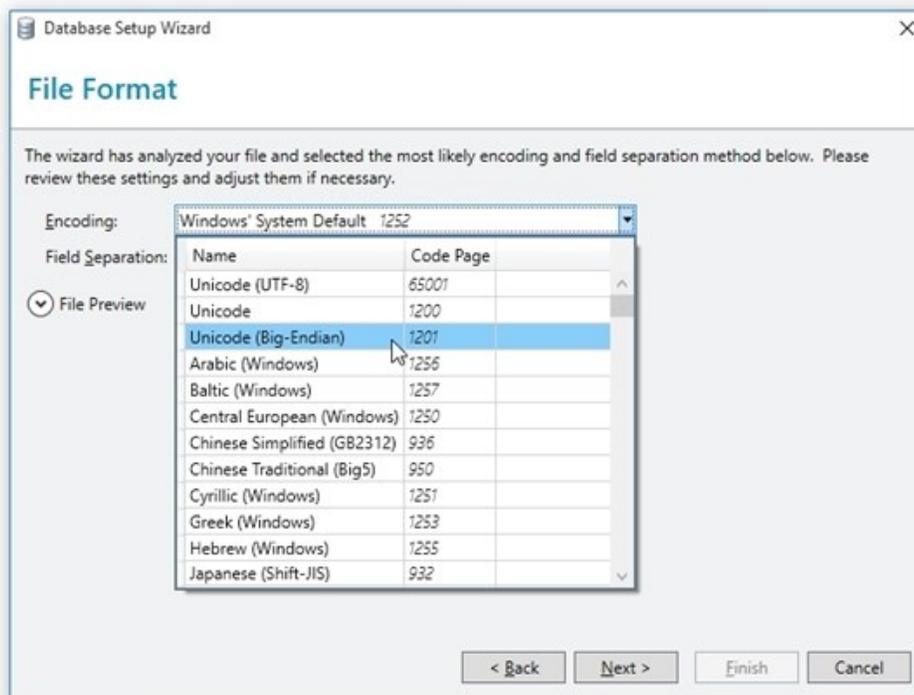
International OLE DB and ODBC Databases

Reading international character data from an OLE DB or ODBC database requires no changes in your Windows settings. No matter what language Windows is using, all your data will be 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 into 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 used to express numerical and character data with a pattern in a barcode. Linear barcodes (or 1D barcodes) rely on bars and spaces to encode the data, while 2D symbologies (such as Data Matrix or PDF417) use dots or squares. The arrangement of these basic elements defines the type of symbology 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 language(s) and the characters you need to include.

A list of supported character sets is listed on the **Symbology and Size** property page under the **Text Encoding** dropdown list. If this option is non-existent or grayed out, then you cannot encode international characters using the selected symbology.
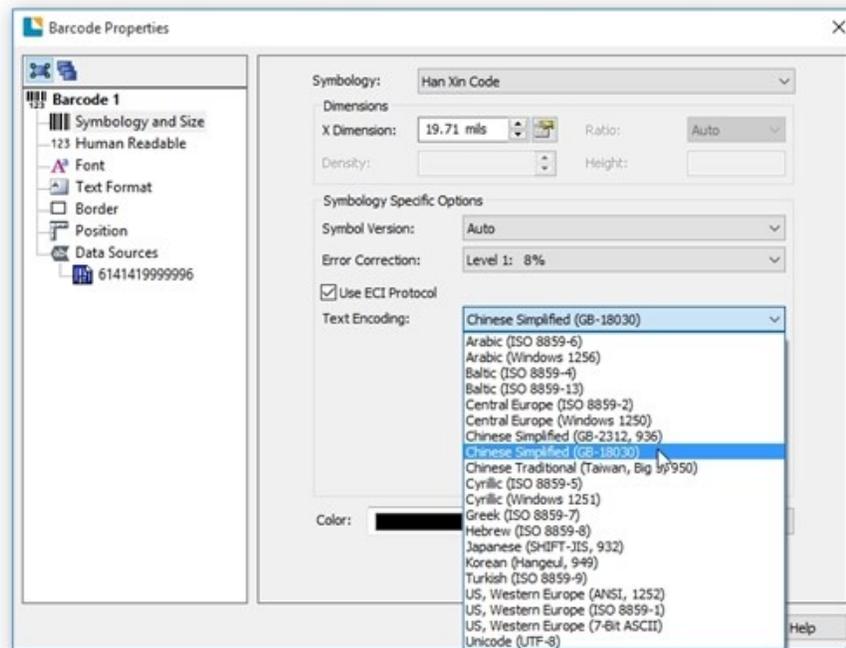
Using Unicode Data

Barcodes do not directly accept Unicode-formatted data. Therefore, if Unicode-formatted data is passed to a barcode object from, say, 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 will usually convert such data to the ANSI 1252 (Western languages) encoding. Unicode characters that have no equivalent in the 1252 encoding will be replaced with 0xFF. Depending on the symbology, this code may be ignored or it may be replaced with a zero.

Some parts of the data stream for Data Matrix, QR Code and Aztec barcodes may be converted to an encoding other than 1252. Refer to each of those topics in the BarTender help for details.

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 using various international character sets or Unicode (UTF-8).

Supported symbologies:

- Han Xin Code
- MicroPDF417
- PDF417
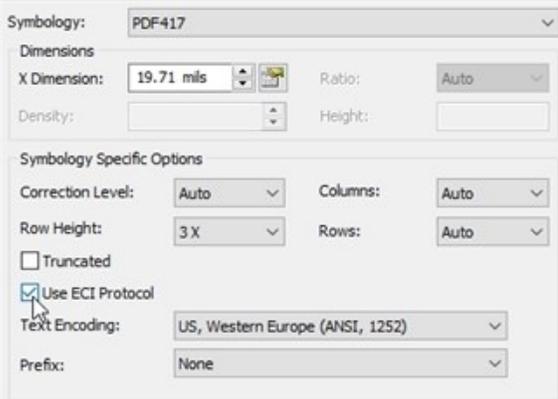
Formatting According to Locale

Various countries may 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 Thailand formats dates according to the Buddhist Era calendar, which is entirely different from the Common Era calendar used by most western countries. Time is formatted quite differently in many countries, as is currency.

BarTender offers the ability to format your text according to country or region.

About Data Types

Each text object (and data source) in BarTender has a *data type* associated with it. The **Data Type** specifies the kind of data in that object or data source, such 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 using the **Locale** option. To set the locale for a data source:

1. Open the **Properties** dialog for the text object you wish to format.
2. In the Navigation Pane, select the desired data source.
3. Click the **Data Type** tab.
4. From the **Type** dropdown list, select the type of data you want to format. The following allow you to format by locale:
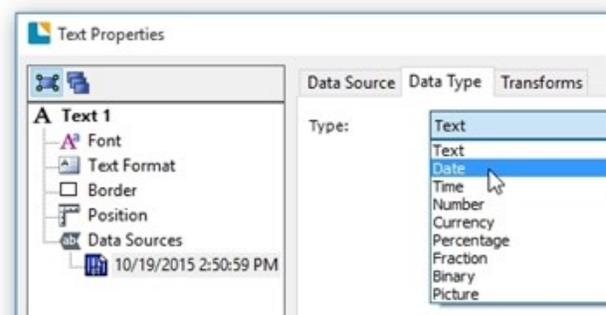
- Date
- Time
- Number

- Currency
- Percentage
- Fraction

5. From the **Locale** dropdown list, select the desired locale.
6. From the **Format** list, select the desired formatting.
7. Click **Close** to apply your changes and return to your template.

Example

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

The image below illustrates the price 35.99, formatted for the United States and the Czech Republic. The only setting in BarTender that changed is the **Locale**.
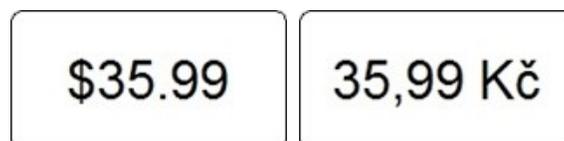
Appendix A: Languages, Encodings and Scripts

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 a international language keyboard or add Windows support for inputting international languages with special on-screen tools.

To install Windows support for international languages:

1. From the Windows **Start** menu, select **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 the **Change Keyboards** button. The **Text Services and Import Languages** dialog opens.

6. Check the **Default Input Language** dropdown list. If the language you want is not listed there, click the **Add** button. The **Add Input Language** dialog opens.

   > **NOTE:** If the language is not listed here, then you must install support for it. Refer to the section Installing Windows Input Support for International Languages.

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

8. Click the **+** next to **Keyboard.**

9. Enable the check box for the language(s) you want to add. If you want to keep your keyboard's default language as well, be sure to enable that check box too.

10. Click **OK** to close each of the open dialogs.

11. If you are prompted to restart the computer or to insert the Windows CD, do so and follow the on-screen prompts.

12. When the installation has completed you can reopen BarTender and your template, and begin entering international text from the keyboard. (Refer to the Re-mapping Your Keyboard section in the Entering International Text chapter.)

Windows Support for Additional Display Languages

Windows installs with support for the languages you are most likely to need, but you may 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:

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

For more information, including a list of languages available for downloading, go to the Microsoft Local Language Program website:

http://www.microsoft.com/about/corporatecitizenship/en-us/community-tools/llp.aspx

Related Documentation

White Paper and Manuals

- Getting Started with BarTender
- Optimizing Print Performance

For downloadable versions, visit:

https://www.seagullscientific.com/support/white-papers

BarTender Help System

- Specifying Reading Order
- Font Property Page
- Data Sources Property Page