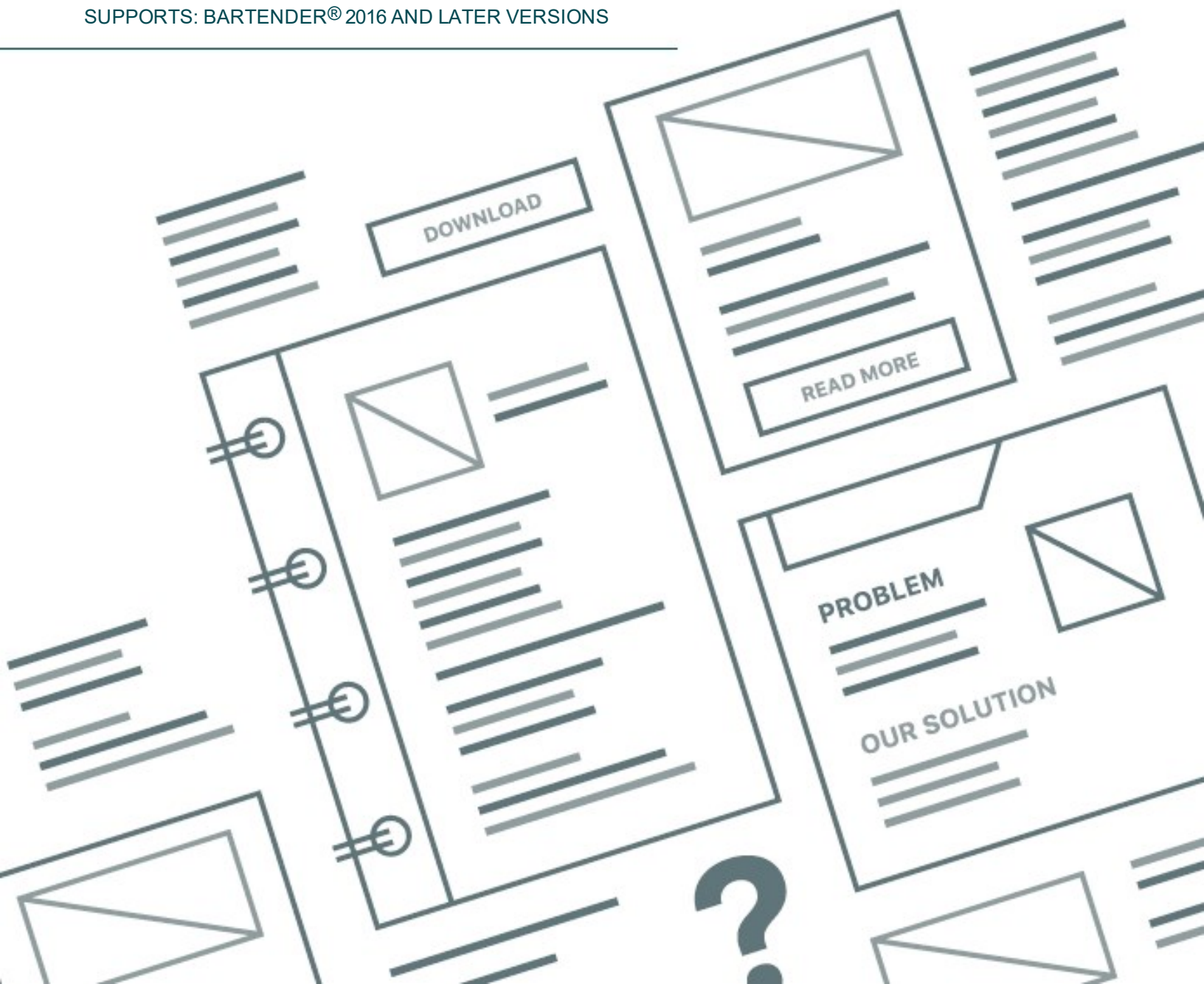**BarTender**®
BY SEAGULL SCIENTIFIC

Assigning Sequential Numbers

USING SERIALIZATION TO ASSIGN UNIQUE
IDENTIFIERS TO ITEMS

SUPPORTS: BARTENDER® 2016 AND LATER VERSIONS

Contents

Overview

Many industries, including the pharmaceutical, food and medical device industries, require you to be able to track their products after they leave the factory or packaging plant. These industries need an accurate and easy way to track and locate their products in the event of a recall or required customer alert, or for expiration management and prevention of counterfeit products. Many regulated industries are required by governmental and other regulatory agencies to closely track their supply chain. For example, the US Drug Supply Chain Security Act (DSCSA) and the EU False Medicines Directive (FMD) came into full effect in 2017. Each regulation describes a specific serialization scheme that manufacturers must use to track all their products.

Serialization refers to the act of assigning a unique identification code to each item in a series. Although each identifier is typically called a "serial number," it can include letters, numbers or symbols.

In BarTender, you can enable and configure serialization for a data source in a template object by using the **Serialization** dialog. After you configure a data source to use serialization, the serialized value automatically increments or decrements with every printed item. You can configure your serialization number to reset itself after an event, such as the end of a print job or a change to a database, or after a specified number of characters is reached.

In its simplest form, you can use serialization to assign individual serial numbers to printed items. You can also use serialization together with other data sources on the template or in the same object to create a full picture of the item's origins and movement through the supply chain.
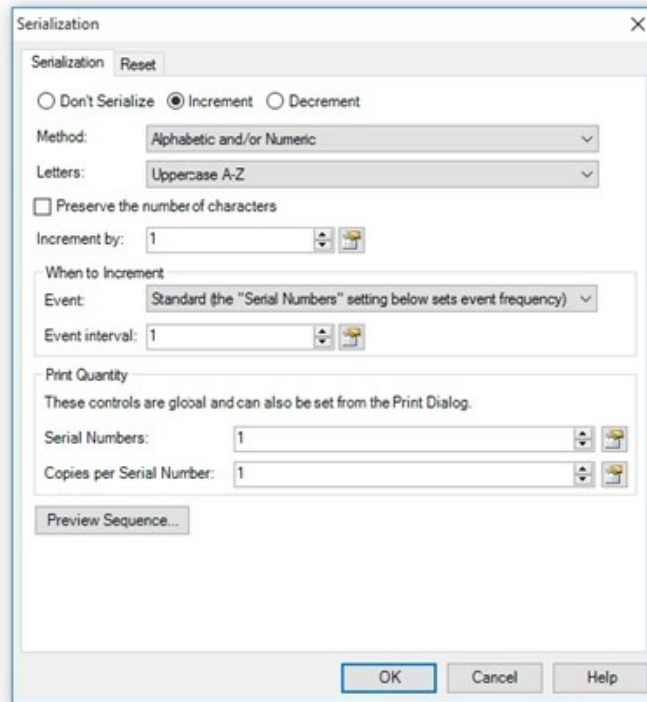
Using Serialization in BarTender

To add serialization to a text, barcode or encoder object, you must enable the Serialization transform. You can enable the Serialization transform and manage BarTender's advanced serialization settings by using the **Serialization** dialog.

This technical document briefly describes some of the options on this dialog. To view the full set of serialization features and examples, refer to the Serialization Dialog topic in the BarTender help system.

Configuring Serialization

Serialization in BarTender is flexible and easy to configure. You can set serialization to simply count printed items, or you can create complex serialization sequences that are based on print or data events.

The following options are available in the **Serialization** dialog.

Increment/Decrement

You can set your serialization sequence to increment (count up) or decrement (count down).

In the **Serialization** dialog, you can specify how and when to increment or decrement the sequence. This can be as simple as incrementing one number each time an item is printed, but many more options are available. For more information about events that can determine when serialization occurs, refer to the Determining the Serialization Frequency chapter of this technical document.

Method

The method of serialization refers to the type of characters that are used in your serialization sequence. You can choose a predefined sequence or create your own, as follows:

- **Alphabetic and/or Numeric**: Specifies that at print time, BarTender detects whether the initial characters in the data source to be serialized are numeric, alphabetic, or some combination of the two, and maintains compatibility with that character set. That is, if the characters that are to be serialized start as numeric, the serialized data will continue to be numeric, and if the characters that are to be serialized start as alphabetic, the serialized data will continue to be alphabetic.
- **Numeric**: Specifies that the set of characters that are used in the serialization sequence is the ten digits 0 through 9.
- **Alphabetic**: Specifies that the set of characters that are used in the serialization sequence is alphabetic only. There are further options within the **Alphabetic** method of serialization, such as uppercase, lowercase, and the option to leave out the "I" and "O" characters to avoid confusion with the numbers "1" and "0".
- **Alphanumeric**: Specifies that the set of characters that are used in the serialization sequence includes the ten digits 0 through 9 and the 26 letters A through Z (in that order). This method includes the same options that are available in the Alphabetic method.
- **Hexidecimal**: Specifies that the set of characters that are used in the serialization sequence includes the ten digits, 0 through 9, and the letters A through F.
- **Custom Sequence**: Specifies that the set of characters that are used in the serialization sequence is a specific sequence of your choosing. For more information, refer to the Defining a Custom Serialization Sequence chapter of this technical document.

Preserve the number of characters

By using this option, you can preserve the number of characters in a serial number, so that the number of characters does not change when the number increments or decrements. This is advantageous when you have limited space in which to print the serial number.

Increment by/Decrement by

You can configure serialization to increment or decrement on each printed item by a value that you specify. Alternatively, you can obtain the increment/decrement value from a database field or named data source.

Print Quantity

You can control how many serial numbers are printed and how many copies are printed per serial number. You can configure these settings in either the **Serialization** dialog or the **Print** dialog.
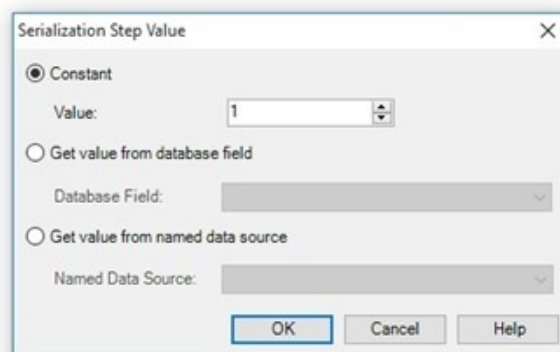
Determining the Serialization Frequency

You can specify how often serialization will occur by defining an "event" that tells BarTender at what time and/or under what circumstances you want to serialize the data source. Your data source can change its value in any of the following circumstances:

- When a new item is printed
- When BarTender reads a new database record
- When a new page of items is printed
- When you run a new print job

When Data Changes

BarTender supports the "When Data Changes" event. This means that BarTender will change the number in the serialization sequence each time a value changes in a connected database field, named data source or template object.
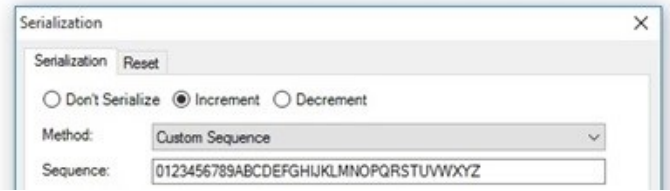
Example

Suppose you have a shipping company that has three products. Instead of serializing each individual item, you want to serialize per *type* of item.

BarTender is connected to a database that includes the field "Product." The value of the "Product" field can be either Product A, Product B, or Product C.

Product A is assigned the serial number 10001. That same number is assigned to every printed item, whether you are printing five items or five thousand, until the value of the "Product" field changes from Product A to Product B. Product B is then assigned the serial number 10002, and subsequent printed items are assigned that same number. When the value of the "Product" field changes to Product C, Product C is assigned the serial number 10003, and so on.

Defining a Custom Serialization Sequence

If none of the predefined serialization sequences meet your requirements, you can use BarTender to define your own custom serialization sequence. For a small print job, you might choose a simple sequence, such as "01234567" or "DEFGHIJ". For a larger, more complicated project, you might want to create a more advanced sequence that contains numbers, letters and/or special characters.

When you create a custom sequence, you must not use the same character twice in a single set of characters. If you repeat a character in the sequence, BarTender will automatically display error message 6620. For example, if you type in a five-character sequence of 24682, the error is displayed, and you must delete the repeated character to continue.

Example

Suppose that you want your serialization to increment (or decrement) by specific numbers, letters, or characters, rather than by a simple consistent interval. In the **Sequence** field, you enter the sequence 1862730. Then, when you set the sequence to increment by 1, your serialization sequence would be 1, 8, 6, 2, 7, 3, 0, 11, 18, 16, 12, 17, and so on.

Advanced Formatting Options

You can use advanced formatting options to add special characters or numeric selection to your serialization sequence.

Using character templates

You can add extra spaces, dashes, parentheses and other special characters to your serialization sequence using the **Character Template** dialog, which is located on the **Transforms** tab of the serialized object's **Data Sources** property page. These characters are not part of the actual serialization sequence; they do not increment or decrement. Rather, they are used to format the data in the serialization sequence into a particular arrangement.

For more information, refer to the Character Template Dialog topic in the BarTender help system.

Using data types

You can combine serialization with a numeric selection on the **Data Type** tab of an object's **Data Sources** property page to include commas or set the number of decimal places. For more information, refer to the Data Sources Property Page topic in the BarTender help system.

Using Multiple Data Sources

In some instances, you might require a complex serial number that contains two or more sections that draw from different data sources. For example, you might have a sequence like the following:

2021-07-25-0001

2021-07-25-0002

2021-07-25-0003

The first part of the number, 2021-07-25, is a date, and it is attached to a **Date** data source type. The last four digits (0001, 0002, and so on) are the serialized number, which changes with every new item. You can configure this serialization by using separate data sources within the object. For more information, refer to the Working with Data Sources topic in the BarTender help system.

Resetting a Serialized Sequence

In many cases, you won't want to continue your serialized sequence forever. You can use the options on the **Reset** tab of the **Serialization** dialog to define the circumstances under which the sequence starts over, as follows:

- When a value is reached
- When you run a new print job
- When BarTender reads a new database record
- When the value of a data source changes
- On a defined schedule

When you define your reset options, you can also set the value that the serialization sequence resets to. At any time, you can click **Reset Now** on the **Serialization** dialog to immediately reset the serialization sequence.
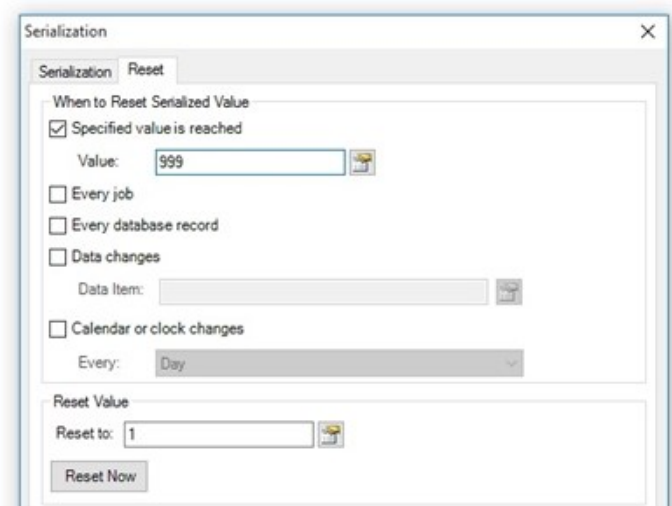
Sharing Serialized Data Sources Between Documents

You can share a serialized data source between multiple documents by creating and serializing a global data field. *Global data fields* are data sources that are available for use by all BarTender documents that are connected to the same BarTender System Database. You can organize them into folders on the BarTender **Data Sources** pane so that they can more easily be categorized.

After you create a global data field, you can open its **Data Sources** property page and configure serialization for it on the **Transforms** tab, just as you would for a data source.

For more information, refer to the Using Global Data Fields topic in the BarTender help system.
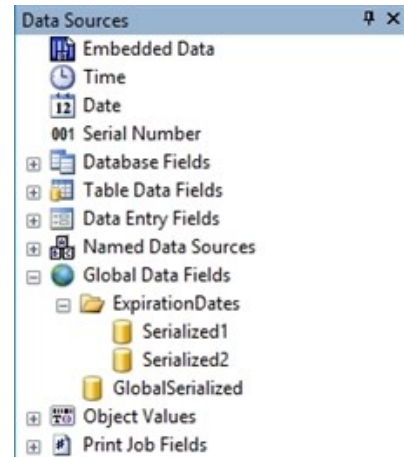
> Global data fields are stored in the BarTender System Database. If you have not yet set up the BarTender System Database, you cannot create or access global data fields.

Example

Suppose that you have three instances of BarTender running that you are using to print three different BarTender documents. Although the documents are formatted for three different items (for example, labels for dog food, cat food and ferret food), their serial numbers share a common section, which indicates the shipment number. This section is on the left.
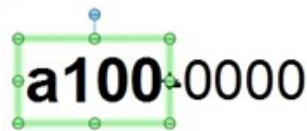
The section of serial number on the right is specific to the type of pet food. The data source for the section on the right is located in the individual BarTender document. However, you draw the data for the shared section on the left from a global data source. To do this, you need to connect an object on each of the three BarTender documents to the same "shipment number" global data field.

Related Documentation

Technical Documents

- *Creating Intelligent Templates*
- *Creating Headers and Footers*

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

- Serialization Dialog
- Working with Data Sources
- Using Global Data Fields
- Character Template

Other Resources

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