Assigning Sequential Numbers

Using Serialization to Assign Unique Identifiers to Items

Contents

Overview

Many industries, including the pharmaceutical, food and medical device industries, require the ability track their products once 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. In fact, many regulated industries are required by governmental and other regulatory agencies to closely track their supply chain. The US Drug Supply Chain Security Act (DSCSA) and the EU False Medicines Directive (FMD) will come into full effect in 2017. Each regulation spells out a specific serialization scheme that manufacturers must use to track all their products.

But it's not just the pharmaceutical industry that uses serialization to enable traceability — serialization is employed as a tracking mechanism across all industry sectors throughout the global supply chain.

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 using the **Serialization** dialog. Once you have configured a data source to serialize, the value will automatically increment or decrement with every printed item. You can set your serialization number to reset 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, serialization can be used to assign individual serial numbers to printed items. Serialization can also be used in conjunction 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.
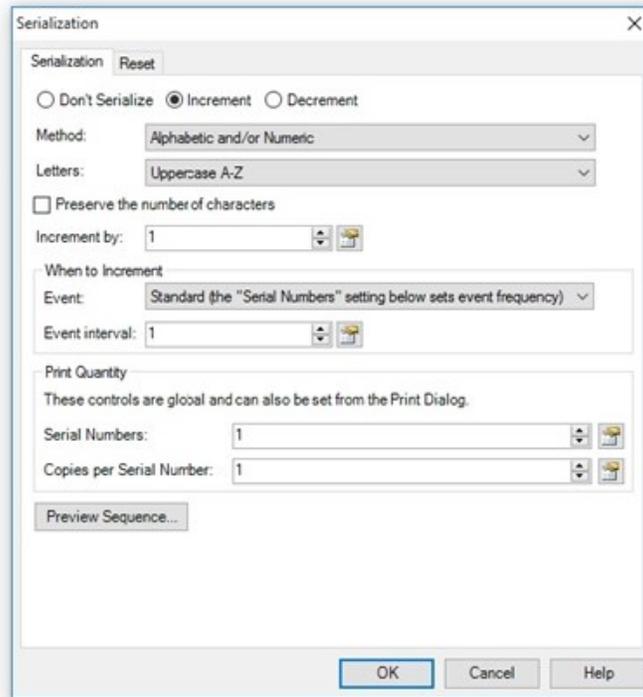
Using Serialization in BarTender

To add serialization to a text, barcode or encoder object, you will need to enable the Serialization transform. BarTender's advanced serialization settings are managed using the **Serialization** dialog. In this white paper, we briefly cover some of these options. 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 easily configured. You can set serialization to simply count printed items, or you can create complex serialization sequences based on print or data events.

Increment or Decrement

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

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

Method of Serialization

The method of serialization refers to the type of characters used in your serialization sequence. You can choose from one of the following predefined sequences or create your own.

- **Alphabetic and/or Numeric:** BarTender detects at print-time 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 to be serialized start out as numeric, the serialized data will continue to be numeric and, if the characters to be serialized start out as alphabetic, the serialized data will continue to be alphabetic.

- **Numeric**: The set of characters used in the serialization sequence will be made up of the ten digits 0 through 9.

- **Alphabetic**: The set of characters used in the serialization sequence will be 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 confusing with the numbers "1" and "0".

- **Alphanumeric**: The set of characters used in the serialization sequence will include the ten digits 0 through 9 and the 26 characters A through Z (in that order). This method includes the same options available in the Alphabetic method.

- **Hexidecimal**: The set of characters used in the serialization sequence will include the ten digits 0 through 9 and the letters A-F.

- **Custom**: The set of characters in the serialization sequence will be a specific sequence of your choosing. Refer to the Defining a Custom Serialization Sequence section of this document.

## Preserve the Number of Characters

This option allows you 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 desirable when you have a small or limited space on which to print the serial number.

Increment/Decrement By

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

Print Quantity

When you are serializing, you can control how many serial numbers will print, as well as the number of copies to print per serial number. These settings are defined in either the **Serialization** dialog or the **Print** dialog.
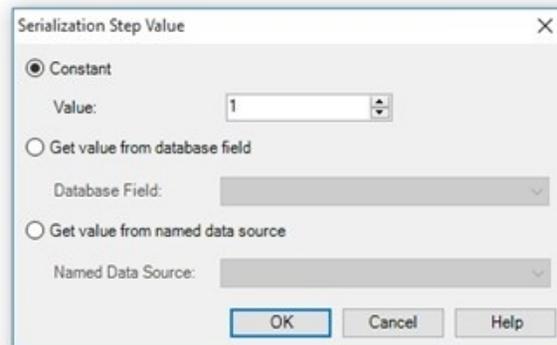
Determining the Serialization Frequency

BarTender lets you define and set how often serialization will occur by defining an "event" which tells BarTender when you serialize your data source. Your data source can change its value in any of the following circumstances:

- When a new item prints
- When BarTender reads a new database record
- When a new page of items prints
- When you execute a new print job
- And more!

When Data Changes

Perhaps one of the most powerful "events" that BarTender supports is "When Data Changes." 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 with 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 5 items or 5,000, until the value of Product A changes to Product B. Product B then gets the serial number 10002, and subsequent printed items are assigned that same number. When the value 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 work for you, BarTender gives you the opportunity 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 may wish to create a more advanced sequence that contains numbers, letters and/or special characters.
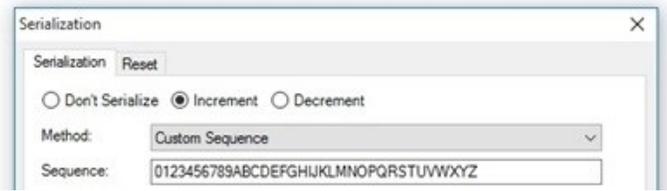
> **NOTE:** When creating a custom sequence, BarTender does not allow you to specify the same character twice in a single set of characters. If you repeat a character in the sequence that you specify, BarTender will automatically display error message 6620. For example, if you type in a five-character sequence of 24682, the error will display, and you will not be able to continue until the repeated character has been deleted.

Example

Suppose that you want your serialization to increment (or decrement) by specific numbers, letters, or characters, rather than a simple consistent interval. You enter the following sequence in the **Sequence** field: 1862730. If you set the sequence to increment by 1, your serialization sequence would look like this: 1, 8, 6, 2, 7, 3, 0, 11, 18, 16, 12, 17, etc.

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, 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 BarTender's help system.

Using Multiple Data Sources

There may be some instances where you require a complex serial number containing two or more sections that draw from different data sources. You can accomplish this by using separate data sources within the same object. For example, you may have a sequence like the following:

2018-07-25-0001

2018-07-25-0002

2018-07-25-0003

and so on.

The first part of the number, 2018-07-25, is a date, and it is attached to a **Date** data source type. The last four digits (0001, 0002, etc.) are the serialized number, and will change with every new item. You can accomplish this by using separate data sources within the object.

For more information, refer to the Introduction to Data Sources topic in the BarTender help system.

Resetting a Serialized Sequence

In many cases, you won't wish to continue your serialized sequence forever. BarTender lets you define when this sequence starts over:

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

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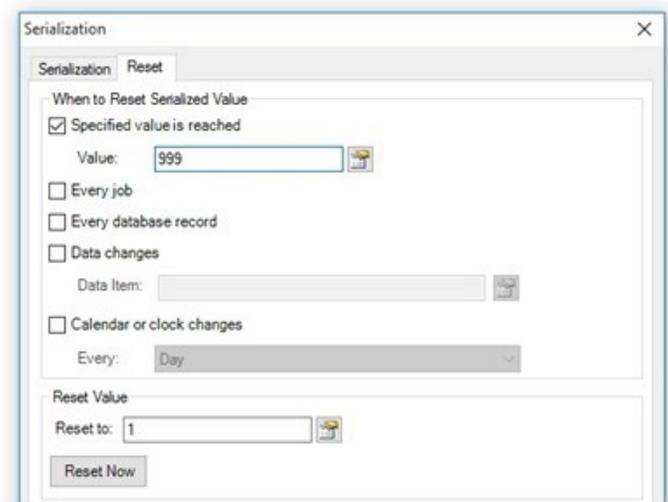
Sharing Serialized Data Sources Between Documents

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

> **NOTE:** Global data fields are stored in the BarTender System Database. If you have not yet set up the BarTender System Database, you will not be able to create or access global data fields.

Once you have created 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.

Example

Suppose that you have three instances of BarTender running, in order 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), they share a common section of their serial numbers, which indicates the shipment number. This section is on the left.
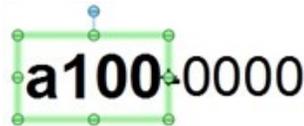
The section of number on the right is specific to the type of pet food. The data source for the section on the right will be located in the individual BarTender document. However, you draw the data source for the shared section on the left from a global data source. To accomplish this, you would need to connect an object on each of the three BarTender documents to the same 'shipment number' global data field.

Related Documentation

White Papers and Manuals

- What's New in BarTender 2016
- Dynamic Template Design

For downloadable versions, visit:

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

BarTender Help System

- Serialization Dialog
- Introduction to Data Sources
- Using Global Data Fields
- Character Template

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