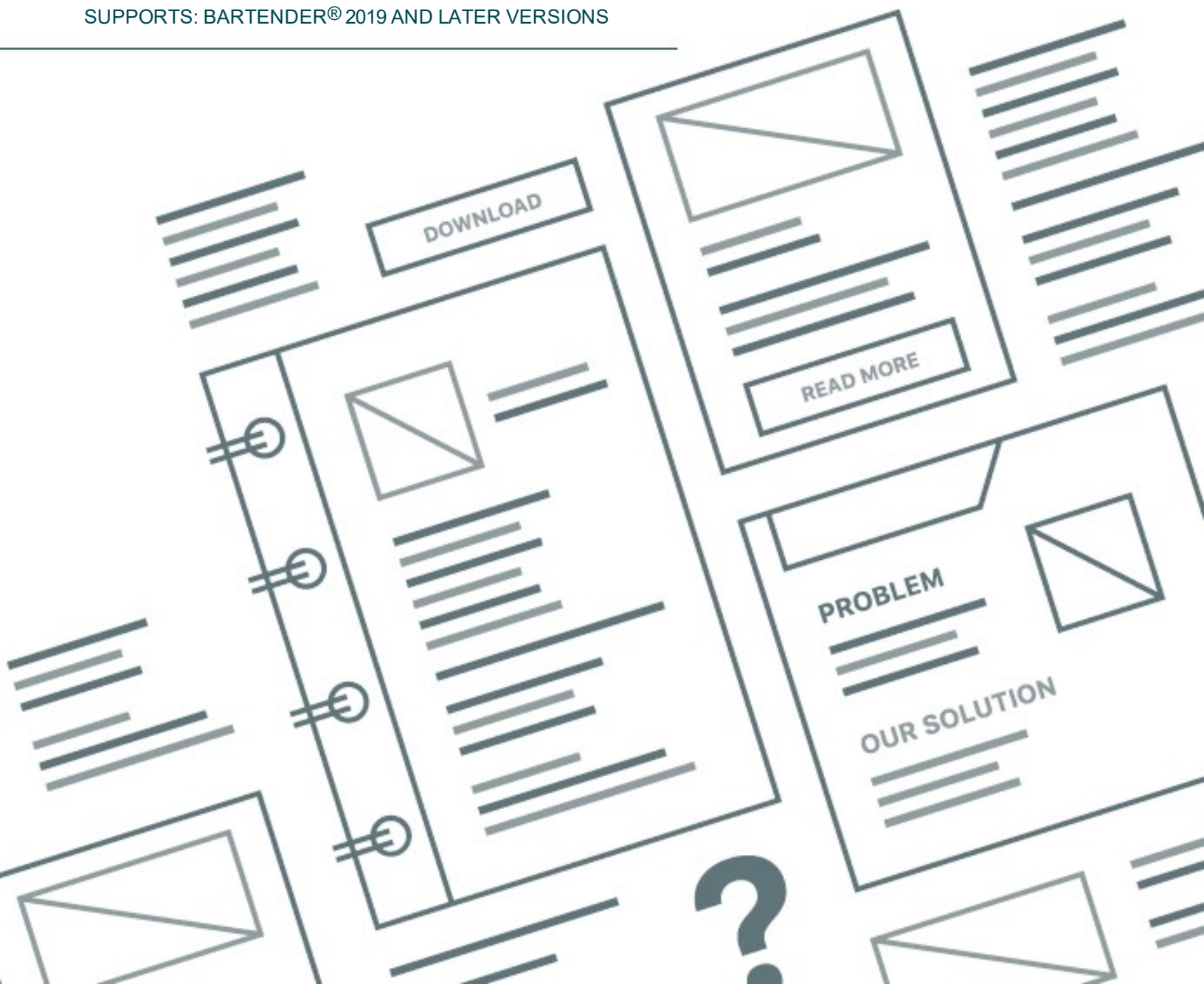# Creating Intelligent Templates™

USING DYNAMIC DESIGN TECHNIQUES TO PRINT
MULTIPLE OUTPUTS BY USING A SINGLE DOCUMENT

SUPPORTS: BARTENDER® 2019 AND LATER VERSIONS

Contents

# Overview

As the popularity of complex and variable designs increases, so does the need for dynamic design techniques. Companies can use BarTender to create Intelligent Templates™ to produce a wide variety of flexible label designs without having to create and maintain hundreds of separate documents, so that you can vary the image, color, object position and text on each item that you print.

For example, one Intelligent Template generated all of the following membership cards by using a variety of dynamic design techniques. This technical document describes these techniques in detail.
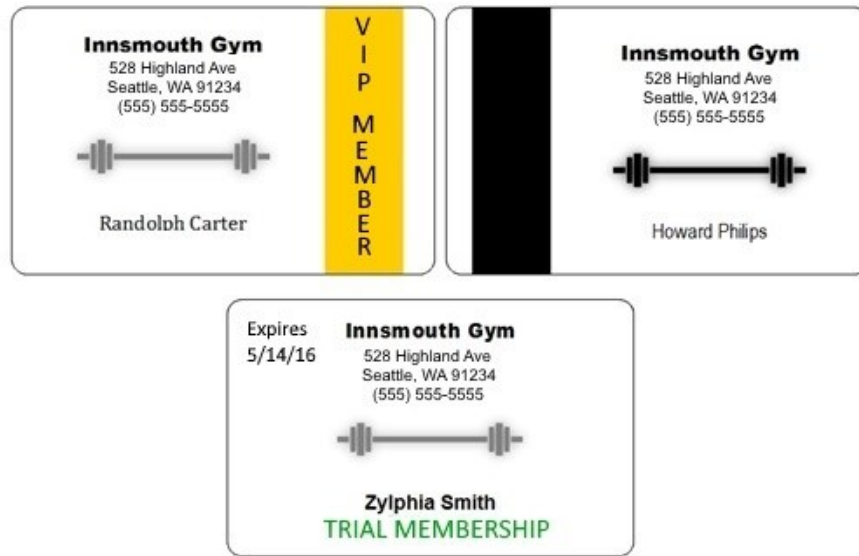
Dynamic Design Techniques

Use one or more of the following techniques to create a dynamic design:

- Use **conditional printing** to set conditions that specify when objects, layers or entire templates are printed.
- Run custom **Visual Basic script** (VBScript) in response to certain document-level events. By using VBScript, you can alter any object's appearance by changing its color, font, position, size or border.
- Use **automatic sizing** for text, barcode and picture objects to make the objects fit a designated space on your template.
- Use **suppression** to automatically hide text on your template based on conditions that you specify.

Conditional Printing

Use conditional printing to specify exactly when different objects, layers or templates in your document are printed. For example, you can configure a graphic to be printed under one condition but not under any others. Or, you can choose to print a template based on a value in your database. You can conditionalize printing for as much or as little of your design as you want.

About Conditional Printing

Conditional printing is based on conditional operators. For example, your conditions for printing might be based on whether the conditionalized item **contains** or **does not contain** certain text, numeric values, or images, or on whether the conditionalized item is **less than**, **greater than**, or **equals** a particular value.

You can apply conditional printing to objects, layers or templates, depending on how much of your design you want to change at print time.

Using conditional printing

To use conditional printing, use the **When to Print** dialog in BarTender to specify a conditional statement that is based on a database field or a named data source value to determine when the object, template or layer is printed.
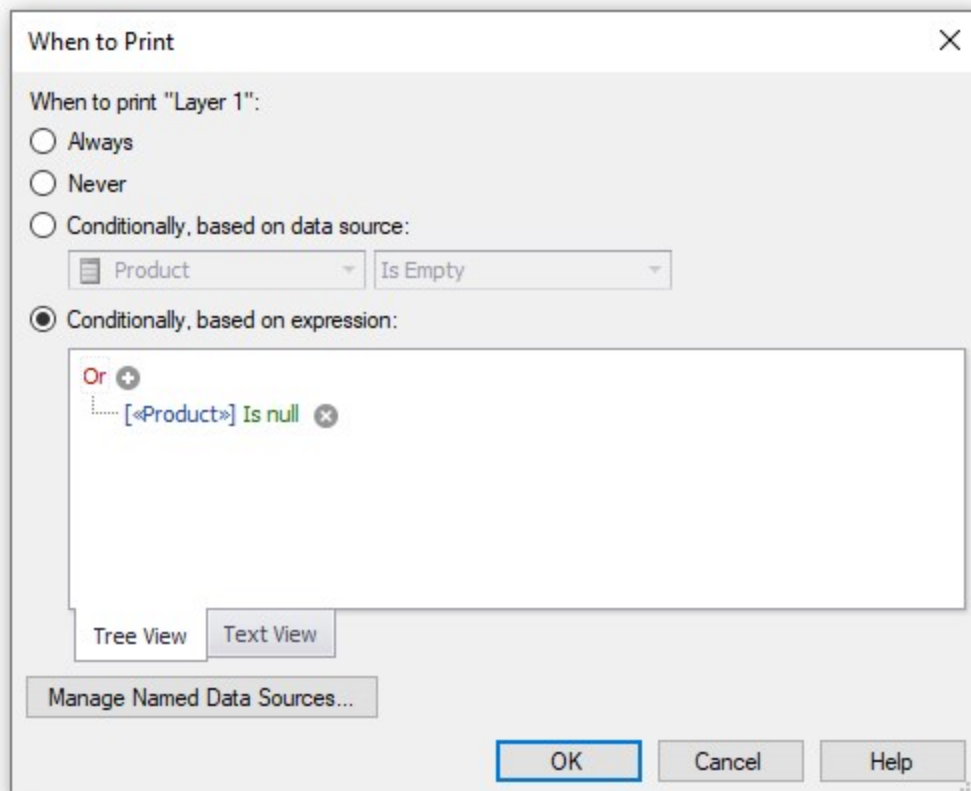
For more information, refer to the following topics in the BarTender help system:

- Conditional Printing
- Building Conditional Expressions
- When to Print Dialog

Conditionally Printing Objects

When your design calls for only one object to change for multiple items, consider setting up conditional printing for that one object. When you do this, you can print (or not print) one object based on conditions that you specify. This technique is useful when you need different objects to appear in variations of the same template.

Any of the following objects can be conditionally printed:

- Barcodes
- Encoder objects
- Text objects
- Line objects
- Shape objects
- Layout grid objects
- Table objects
- Pictures

Example

In this example, the document is connected to a database that includes a list of conference attendees and their status. The **When to Print** dialog was used to configure the bottom text object to be conditionally printed based on whether the attendee has a status of "VIP." Notice that the position, formatting and visibility of all other objects on the name tag remain the same, regardless of whether the status is printed.


Conditionally Printing Layers

When you have a complex design in which multiple objects are the same among all designs but other objects change, consider using conditional layers. A *layer* is an object or group of objects that occupies a single plane. Layers are stacked on top of one another.

How layers work in BarTender

In BarTender, each layer can contain one or more objects. When you need to dynamically print multiple objects on your template at different times, you can put the objects on different layers and then conditionalize the layers to be printed when certain conditions are met. You use the **When to Print** dialog for each layer to specify when that layer is printed, just as you do when you conditionalize an object.

Example

In this example, the following base layer includes all of the objects that remain the same on all of your designs.
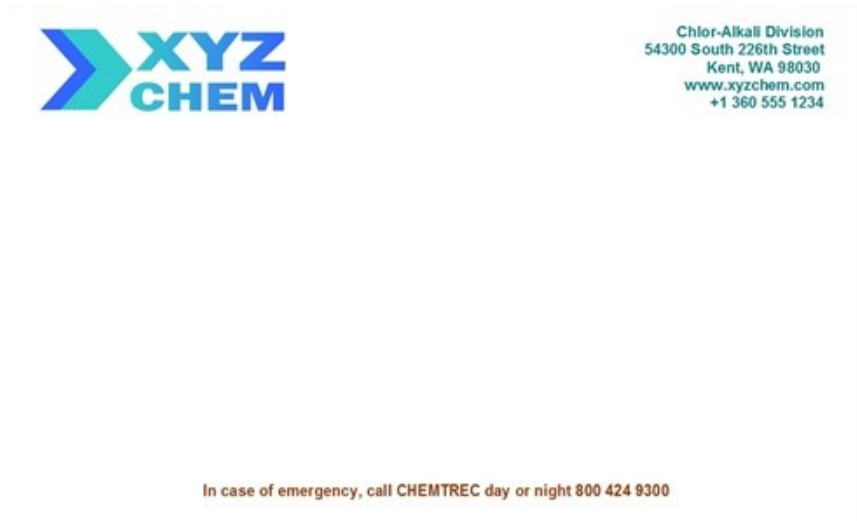
Each subsequent layer includes the objects that differ on each of your designs. Each layer can include one or more objects, as shown.
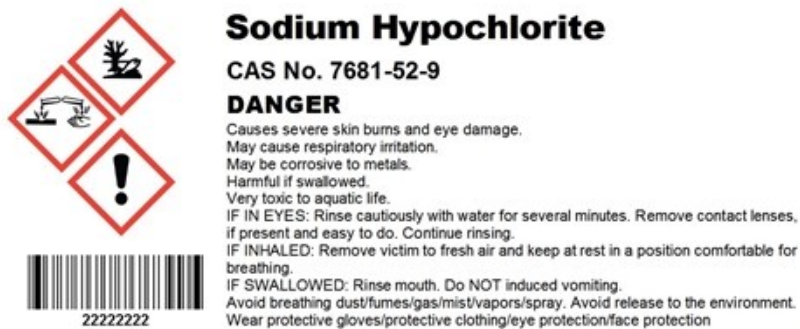
Sodium Hydroxide
CAS No. 1310-73-2
DANGER
Causes severe skin burns and eye damage.
Harmful to aquatic life.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
Do not get in eyes, on skin, or on clothing. Keep container tightly closed.
Avoid ingestion and inhalation.
Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Keep away from acids. Store protected from moisture. Containers must be tightly closed to prevent the conversion of NaOH to sodium carbonate by the CO2 in the air.

99999999

After you conditionalize each of the subsequent layers by using the **When to Print** dialog, the layers are printed on top of the base layer based on the conditions that you set. The final print output for this example is as follows.

XYZ CHEM

Chlor-Alkali Division
54300 South 226th Street
Kent, WA 98030
www.xyzchem.com
+1 360 555 1234

Sodium Hypochlorite
CAS No. 7681-52-9
DANGER
Causes severe skin burns and eye damage.
May cause respiratory irritation.
May be corrosive to metals.
Harmful if swallowed.
Very toxic to aquatic life.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF SWALLOWED: Risne mouth. Do NOT induced vomiting.
Avoid breathing dust/fumes/gas/mist/vapors/spray. Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection

22222222

In case of emergency, call CHEMTREC day or night 800 424 9300

For more information about layers, refer to the following topics in the BarTender help system:

- Using Layers
- Layer Properties Dialog
- Arranging Layers on a Template

Conditionally Printing Templates

When one piece of information can alter the entire layout of the document that you want to print, consider creating two or more different templates for the same document. You can configure templates to be printed by using either conditional printing or template selectors.

Consider the following example. Your company has two offices, one in Seattle and the other in New York. All of the employees are listed in the same database, and you need to print business cards for all of the employees. The office in Seattle uses one design for their business cards, and the office in New York uses a different design. Each design is saved as a separate template within the same BarTender document.

The following examples describe how to configure conditional printing for this scenario by using both conditional printing and template selectors.

Example 1: Conditionally printing templates

By using conditional printing, you can specify multiple conditional expressions for each template, and you have a lot of flexibility for specifying print conditions.

For example, suppose that your database has a "City" field that includes multiple different spellings for the same city (New York, New York City, NYC). To address the discrepancies in terminology, you can define multiple conditional statements so that you can print items for all the variations of "New York" in the database.

To do this, specify your conditional statements in the **When to Print** dialog to instruct BarTender to print the document when it encounters "New York", "NYC", or "New York City" in the "City" field of the database, as shown.
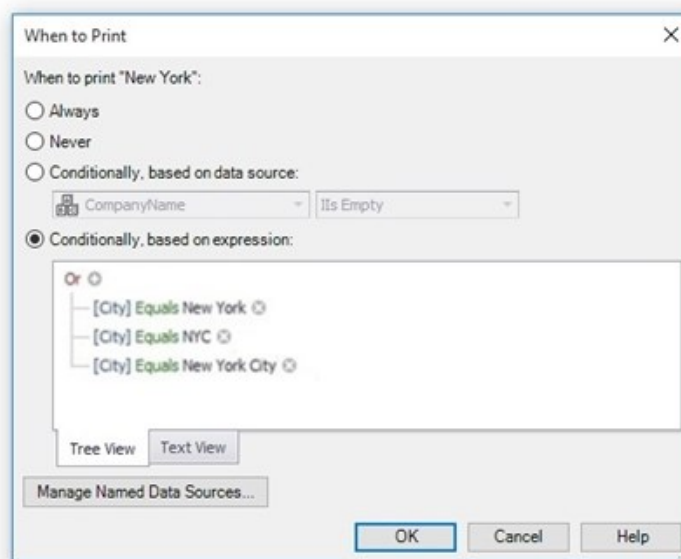
Repeat this procedure for the Seattle template to instruct BarTender to conditionally print the template when the "City" field contains the values "Seattle" or "SEA".

As a result, if the value that BarTender reads from the database is "New York", "NYC", or "New York City", the New York template is printed, and if the database value is "Seattle or "SEA"," the Seattle template is printed.

For more information, refer to the following BarTender help topics:

- Page Setup Dialog
- When to Print Dialog

Example 2: Using template selectors

Template selectors provide a simple way to choose among templates when you know all the values that could appear in your data source. When you use a template selector, it determines which template to print based on the content of the data source. Note that the data source must match the name of the template for the template to be printed.

For example, suppose that the only values for the "City" field in the database are "Seattle" and "New York" and that the names of your templates match these values.

On the **Templates** tab of the **Page Setup** dialog, add a new template selector. Drag both the Seattle and New York templates to the template selector. Then, select the value that you want to use to match the template name. In this example, select the "City" database field.

As a result, if the value that BarTender reads from the database is "Seattle," the Seattle template is printed, and if the database value is "New York," the New York template is printed.

For more information about template selectors, refer to the Using Template Selectors topic in the BarTender help system.
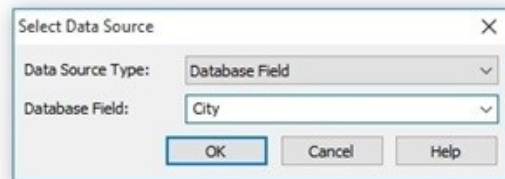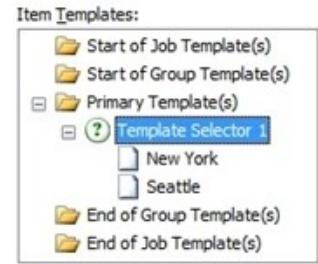
Using Visual Basic Script

Visual Basic Script (VBScript) is a very flexible language that you can use to programmatically modify objects at different times throughout the document design and print process.

You can use VBScript to change object properties such as size, location and color, in combination with any other variables that you can script. For example, you can change an object's color based on the time of day or change an object's size based on the color of another object. VBScript is perhaps the most dynamic template design tool of all, because when you have the appropriate programming skills, you can accomplish almost anything that you want in your BarTender document.

> Although Visual Basic scripts can be complex enough to be considered "programs," sometimes a single line of VBScript can prove very useful. However, scripting is typically a technique for power users that is not ideal for beginners. In any case, we recommend that you determine whether BarTender offers a solution to your challenge before you try using a script-based solution. For more information, refer to the Visual Basic Scripting book in the BarTender help system.

For a complete listing of object properties that you can dynamically change by using VBScript, refer to the Template Objects topic in the BarTender help system.

Document-Level Events

You can use VBScript to modify objects in a BarTender document only by using document-level event scripts, such as opening or closing a document, starting a print job, reading a database record, and so on. To write scripts for these events, use the **BarTender Document Options** dialog to enable document-level script events. Once this feature is enabled, you can write scripts for the events by using the Visual Basic Script Editor.

For more information about the available document-level events that you can use for Visual Basic scripting and how to open and use the Visual Basic Script Editor, refer to the following topics in the BarTender hep system:

- Document-Level Events
- Visual Basic Script Editor
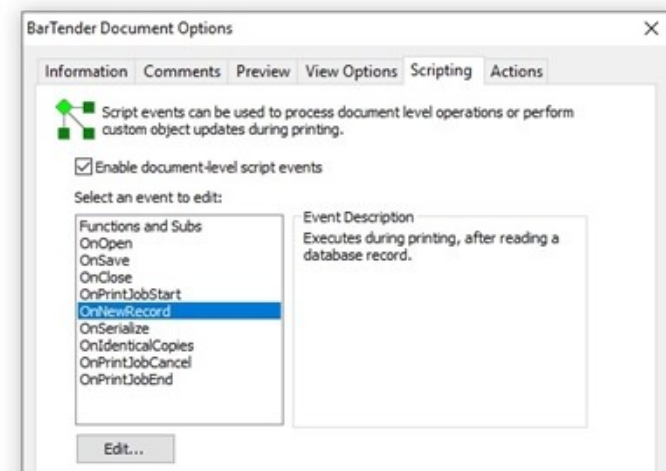
Changing Object Properties by Using VBScript

The following examples describe how to change object properties by using VBScript.

Example 1

A common use case is to change an object's color in response to the data that is coming from a database.

In this example, you want to make an object's text color gold, silver or bronze, depending on membership level. To do this, enter script that resembles the following in the **Editor** pane of the Visual Basic Script Editor.

```
Set Notice = Objects("Text 1")
If (Field("MembershipType") = "Gold") Then
   Notice.TextColor = btColor.Gold
Else
   If (Field("MembershipType") = "Silver") Then
      Notice.TextColor = btColor.Silver
   Else
      If (Field("MembershipType") = "Bronze") Then
         Notice.TextColor = btColor.DarkGoldenrod
      Else
         Notice.TextColor = btColor.Black
      End If
   End If
End If
```

Example 2

If your database includes a column that contains the name of a color, you can use VBScript to set the color of an object by reading the color from the database. To do this, enter script that resembles the following in the **Editor** pane of the Script Editor.

```
ReferenceField("ConditionColor")
Objects("Box 1").FillColor = Eval(Field("ConditionColor"))
```

When you do this, the "ConditionColor" field in your database can contain values such as "BtColor.Red" or "BtColor.FromRGB(255,0,0)".

Example 3

You can use VBScript to change the properties of linked objects and embedded objects or to switch among the objects. The following sample code uses VBScript to switch between two linked image objects based on conditional values.

```
ReferenceField("Image")
    Set ImageObject = Objects("Picture 1")
If Field("Image") = "Black" Then
   ImageObject.PicturePath = "C:\vbscriptimagepath\images\BarTender_Black.png"
Else
   ImageObject.PicturePath = "C:\vbscriptimagepath\images\BarTender_RGB.png"
End If
```

Example 4

You can hide or show objects based on the data that is read from a database or named data source. To do this, you can use an object's PrintVisibility property, or you can move the object on or off the design area by using its X and Y properties.

For example, if you want a line object to appear only if a "Location" database field has the value "Seattle," enter script that resembles the following in the **Editor** pane of the Script Editor.

```
Set Notice = Objects("Line 1")
If (Field("Location") = ("Seattle")) Then
    PrintVisibility = True
Else
    PrintVisibility = False
End If
```

Support for Data-Sourced VBScript

You can feed VBScript into BarTender from external sources, such as a database or a program that is controlling BarTender. For example, you might configure a field in a database to contain VBScript code. Then, when BarTender reads the data record that contains that field, VBScript code in BarTender can use the Visual Basic "Execute" statement or the "Eval" function to run the imported VBScript.

> This is an advanced technique that should be used only by users who have extensive VBScript experience or who have the help of a BarTender reseller or other consultant.

Automatically Sizing Objects

BarTender can automatically adjust the size of objects on your template based on the data that is contained in the object. You can configure the sizing settings by using the **Object Properties** page for a text, barcode, or picture object, as follows:

- For text objects and the human readable text portion of barcode objects, you can use the **Auto Fit** property page to change the font size, scale and spacing of the text to make it fit the available space on the template.
- For barcode objects, you can use the Auto Fit feature to automatically fit the barcode symbol to a width that you specify.
- For picture objects, you can use the settings on the **Picture Properties** page to make sure that the pictures automatically fit a specified space on the template.

Using Auto Fit for Text Objects

The Auto Fit feature configures the size of the text to fit into the text object that you have specified on the template. The text object itself stays the same size; only the text inside the object is adjusted.

To use this feature, click **Auto Fit** in the navigation pane on the **Text Properties** dialog for the text object, and then click to select the **Automatically fit text to specified dimensions** check box. After you do this, you can specify the dimensions, alignment, minimum and maximum font point sizes, font scale width, and character and line spacing .

Example

Suppose that you are creating mailing labels and that certain fields contain more address information than others. For example, some customer names and company names are longer

than others and exceed the label dimensions. By using Auto Fit for these text objects, you ensure that they always fit on your label.

When you apply Auto Fit to the text objects that correspond to the "Customer Name" and "Company Name" fields of your label, the text size adjusts to fit the available space, as shown.

Using Auto Fit for Barcode Objects

You can use the Auto Fit feature for both the barcode symbol and the accompanying human readable text, so that regardless of the length of the data source, the objects that contain your barcode symbol and human readable text maintain a consistent size. You configure the Auto Fit settings separately for the symbol and the text.

When you use Auto Fit to configure the human readable text, the text automatically fits into dimensions that you specify. To do this, click **Auto Fit** in the navigation pane on the **Barcode Properties** dialog, and then click to select the **Automatically fit text to specified dimensions** check box. After you do this, you can specify the dimensions, alignment, minimum and maximum font point sizes, font scale width, and character and line spacing .
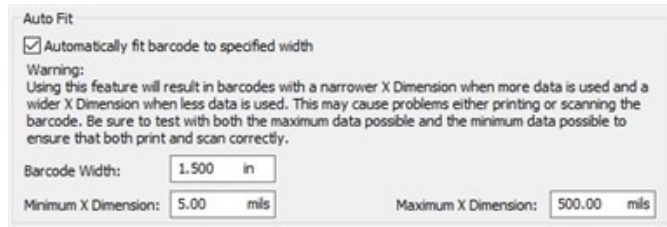
When you use Auto Fit to configure the barcode symbol, BarTender adjusts the X dimension to maintain the symbol size that you want. To do this, click **Symbology and Size** in the navigation pane on the **Barcode Properties** dialog, click next to the **X Dimension** field, and then click to select the **Automatically fit barcode to specified width** check box. After you do this, you can specify the symbol width and maximum and minimum X dimension widths that you want.

> The barcode width that you specify is the maximum width that the barcode uses. Therefore, depending on the data source value, the symbol that is printed might be smaller than what you specify. Because Auto Fit can affect the density (and consequently, the readability) of data, we recommend that you test your scanner's ability to read barcodes at both your minimum and maximum settings.

Example

Suppose that you are printing labels and that each label has a specified area where one of four barcodes appear. The barcodes contain varying amounts of information and human readable text, but you need all of them to fit within the specified area on the template.

Depending on the barcode type and the values of the connected data source, your results when you use Auto Fit might resemble the following sample labels. Notice that the X dimension of the barcode symbol becomes smaller as the data source (indicated by the human readable text) increases in length so that the symbol maintains its width.


Automatically Sizing Picture Objects

You can configure picture objects to automatically fit a specific area on the template. To do this, use the picture object's **Picture Properties** dialog.

Example

Suppose that you want to create labels to mark sale items and that you want the picture of the current sale item to appear in a particular place on the template. You have multiple pictures that can appear on the label, and not all of the pictures are the same size. You need all the pictures that appear on the template to be printed at the same size.

To do this, click **Size** in the navigation pane of the **Picture Properties** dialog, and then configure the sizing settings that you want. Then, click to select the **Lock Size** check box. When you do this, any picture that you use for that object appears at the size that you selected.
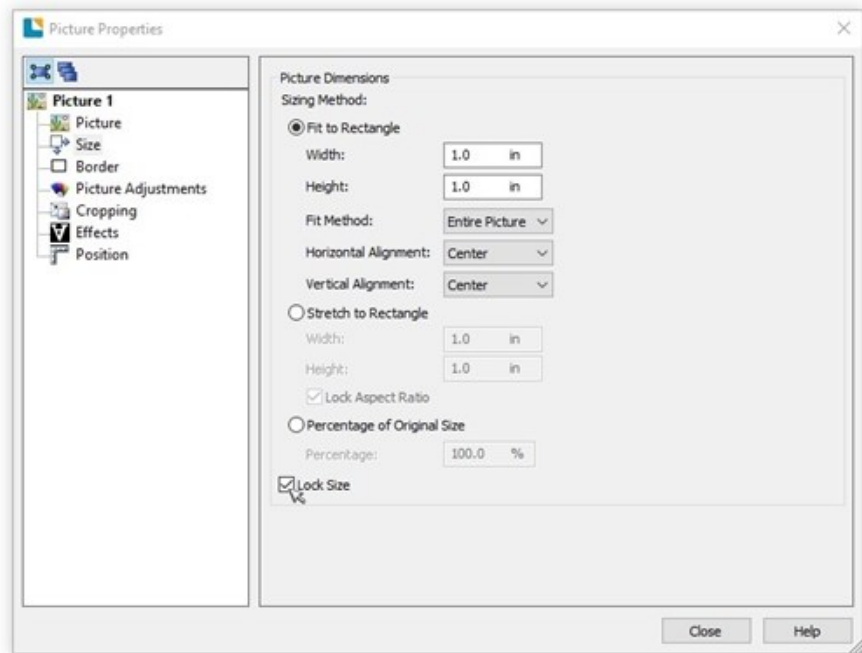
Using Suppression

You can use the suppression feature in BarTender to conditionally print data sources. Suppression differs from the conditional printing methods that were described previously in that data sources are suppressed, or hidden, when a condition is met.

Suppression is commonly used for a wrapped text object that contains separate data sources for each line in the object, but in which a data source might not contain data. When the data source does not contain data, you might want to configure BarTender to automatically suppress the data source so that it doesn't appear on the label as a blank space.

Example

Suppose that you have a wrapped text object that uses multiple data sources for an address label. The data sources are linked to database fields that are called CustomerName, CompanyName, Address1, Address2, City, State, and Country. To create line breaks between the address lines, an Embedded Data data source that contains only a carriage return is added after each Database Field data source.

For some records in the database, there is no data in the "Address2" database field. You want to eliminate the blank space that appears on the label if the "Address2" data source is empty.

To do this, on the **Transform** tab on the **Data Sources** property page, apply the **Suppress when previous data source is empty** suppression rule to the carriage return data source that follows the "Address2" data source. By suppressing the carriage return when there is no data for the "Address2" data source, you eliminate the blank space.

As a result, your address labels are printed without a blank space when the "Address2" field is empty.

Before suppression   After suppression
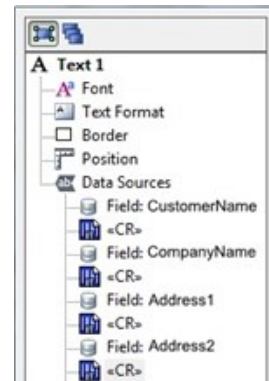
For more information about suppression, refer to the Suppression Dialog topic in the BarTender help system.

For more information about how to read data from databases, refer to the Reading Data from Databases topic in the BarTender help system.

Appendix A: Task Reference

The following table describes common dynamic design tasks and the methods that we recommend that you use.

Task	Recommended Methods
Show or hide a single object based on the data that is read	Conditional printing for objects
Show or hide multiple objects based on the data that is read	Conditional printing for layers
Change the color of an object based on the data that is read	Conditional printing for layers VBScript
Change the font size of a text object based on the data that is read	Auto Fit for text
Hide the contents of a selected data source under certain conditions	Suppression
Change the size of a barcode object based on the data that is read	Auto Fit for barcodes
Change the position of an object based on the size or other properties of another object	VBScript
Change part of a template design based on the data that is read	Conditional printing for layers
Change the entire template based on the data that is read	Conditional printing for templates Template selectors

Related Documentation

Technical Documents

- *Color Coding Your Items*

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

- Building Conditional Expressions
- Conditional Printing
- Using Layers
- Suppression Dialog
- Using Template Selectors
- Visual Basic Scripting
- Reading Data From Databases

Other Resources

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

To learn more about conditional printing, please visit the BarTender Support Center website at *https://support.seagullscientific.com*.

- "Introduction to conditional printing" (WEB)
  https://support.seagullscientific.com/hc/en-us/articles/205643327-Introduction-to-conditional-printing

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