SHUTTLE: All about BARCODES

SHUTTLE ENTERPRISE SERVER

INTRODUCTION

SHUTTLE supports both INPUT and OUTPUT of Barcodes. In this Document, we will discuss how SHUTTLE Applications may read Barcodes, and how Barcodes may be printed (produced) from Applications.

BARCODE INPUTS

Barcodes are used in many ways, and just about any product found in any Retail Outlet has a barcode printed on it somewhere.

Typical instances of barcode reading that we may find in a SHUTTLE Application include :-

- Use of Barcode Readers to produce Values to Input Fields on Screens
- Use of Barcode Readers to facilitate Stock Counts
- Use of Barcode Readers to record Document Movement
- Use of Barcode Readers to record Distribution Events

Input Fields

To use Barcode Readers to feed Values to Input Fields is a simple affair. The Barcode Reader is applied to send what it reads to the KEYBOARD object, and Shuttle receives this information just as if the User typed the Value. A typical example is a Point-of-Sale Screen where the Cashier uses the Barcode Reader (Scanner) to record each Product Code that passes through the Cash Point, to the Point-of-Sale Screen.

Stock Counts

It is becoming more prevalent for Stock Counts to be performed by using hand held Barcode Scanners or PDA's, and feeding the Data File to the Application afterwards, i.e. details of Items Counted. This type of procedure is supported in SHUTTLE.

Document Movement

In any scenario where Document movement needs to be managed, Barcodes may be used to track such movement, by simply scanning a Barcode on the Document at a defined point, and passing this information to the Application.

Distribution Events

As with Documents, Goods and Objects may contain Barcodes which can be scanned to track Distribution events.

BARCODE OUTPUTS

Options are provided for 2 standard ways of Barcode Label Production: -

- On Demand (a single Barcode Label at a time)
- Scheduled Production (bulk production of Barcode Labels)

On Demand -

This type of Barcode Label Production is used with Application Functions where a Barcode Label needs to be produced on demand. Typical examples could be a) Introducing a new Stock Item, b) Trading In an Item that goes into Stock and which needs a new Code (and Label), or c) a New Document that needs to be tracked.

For this, single column continuous Label Stationery is typically used. When a new Barcode Label is printed, the system sends the appropriate print instructions to the Printer with the Label Stationery already loaded, and afterwards advances to the beginning of the next Label, in readiness for a future 'on demand' Label Print.

This method requires an 'On Demand' Print Layout specification (discussed lower down). The Application sends the Data String to a standard SHUTTLE Function Call, and the system produces the necessary Barcode.

Scheduled Production -

Scheduled Production of Barcodes, also called Bulk Printing, represents the capability to produce multiple Barcodes in one print session. Typical application could be a) Printing a range of Inventory Barcodes, b) Printing a Range of Document Labels.

For this, we use the concept of a Page of Labels, with potentially multiple rows and multiple columns of Labels on a Page, and where the system produces a Page of Labels at a time.

This method requires a 'Bulk' Print Layout specification (discussed lower down). In this case the Application relies on a Work file that contains the Records that will be used to produce the Barcode Labels.

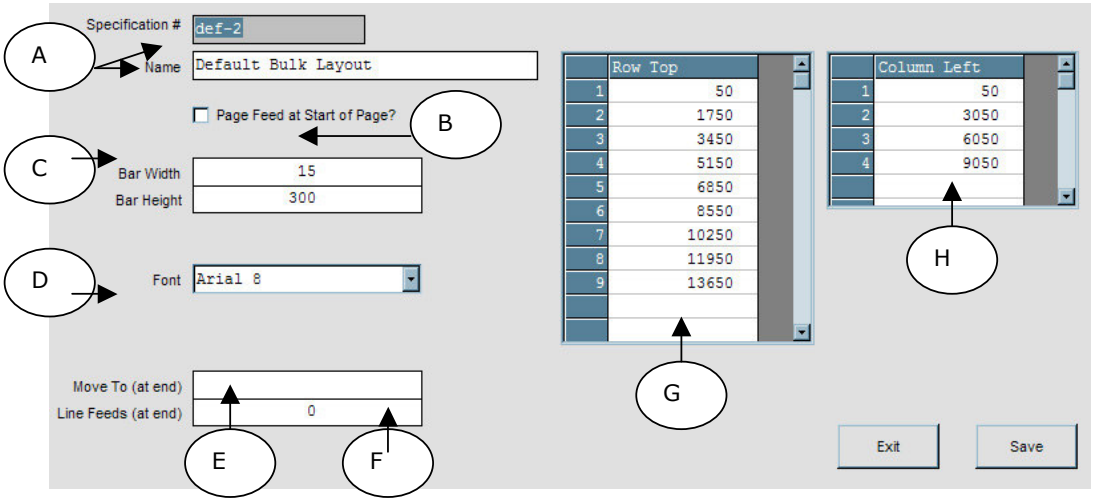
OPERATIONS

From an OPERATIONS point of view, it is necessary to understand how the Print Layouts work, so that you may adapt your Print Layouts to suit whichever Label Stationery you may want to use.

The entry point to Barcode Print Layout definition is found on the BUSINESS OBJECTS Wizard, or from the Business Objects Menu path.

Barcode Print Definitions are found at the bottom right corner of the Business Objects Wizard.

We will look at the BULK layout definition 1st.



All measurements on your print layout specification is indicated in Twips. This is a device independent measurement, and you can use any size labels that you need to. You may also have different stationery types with different label sizes and / or layouts, and may use any number of print layouts (each specified as a different print specification), to suit your needs.

There are 1440 Twips per inch, or per 2.54cm. As such, you can measure exactly where each label on the print layout should print.

A: You give each print specification a short unique code, of your own making. (The one shown above comes with your system.) You also give it a Name to differentiate it from others, or to indicate the stationery type or some method that will make it easy to select the correct (previously tested) setup whenever you wish to print with that kind of stationery.

B: Page Feed will not be used if you use tray feeding, since the system will print a page at a time. If you use continuous sprocket feed stationery, you may want to use the Page Feed at the beginning of each print page, depending on Printer settings. The purpose is simply for the printing to start at the correct place on each new page, which with tray feeders is automatically correct.

C: Bar Width is the actual thickness of the vertical bars on the Barcode, and you can check the on-line help to see which values are allowed. '15' is a good average. '10' will reduce the length of the printed barcode still more. (Barcodes are not read on the basis of the thickness of the bars, but rather on the basis of

interval relationships between bars.) Bar Height indicates the length of the vertical bars, and you can try with 300, 400 and 500 to see the difference this will make.

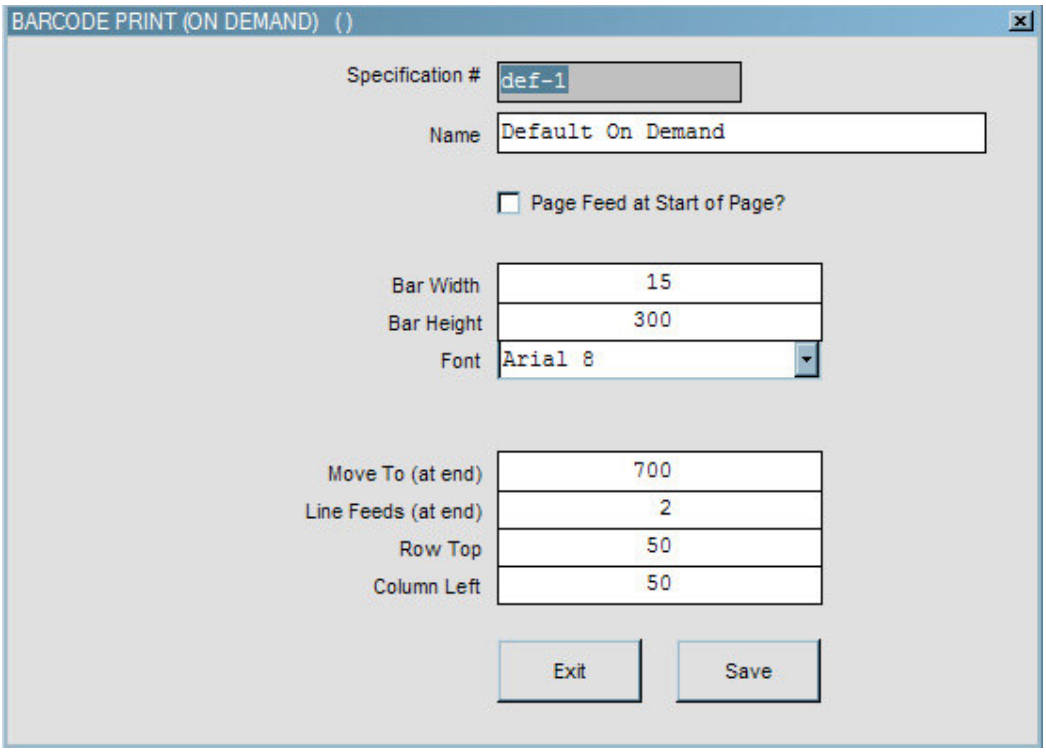
D: You may choose between a number of different Font offerings (and sizes) for the text that prints immediately below the bars.

E & F: Move To and Line Feeds are seldom used with BULK specifications. If needed, you may specify a number of Line Feeds at the end of a printed page that will position correctly for the start of the next page (obviously NOT if you use Page Feed or Tray Feeders). Move To is simply provided as another option (more often used with ON DEMAND printing) to move the relative print position to a certain point after completing a page.

G: You will indicate as many Row Tops as there are rows of labels on a page of the stationery you are using. Each position indicates the relative position from the top of the page to where the row should start printing, in Twips.

H: As for rows, you indicate the Leftmost Print Starting Positions for the number of Label Columns on the page, which can be 1, 2, 3 or 4 Columns. Only specify values for the number of Columns (of Labels) that are present on the stationery.

The Print Layout for ON DEMAND is not much different to what is show above, except that there is a concept of a single row and a single column. See below.



Please also check the on-line Help for each Field on the Print Layout. With On Demand printing, the 'Move To' and 'Line Feeds' at end are more important, since the so-called 'page' (1 Label at a time) is not the same as an actual page. Depending on the Printer capabilities, and whether or not you can set an appropriate page size (i.e. per Label), you may need to use the 'Move To' and / or 'Line Feed' options.

DEVELOPMENT / TECHNICAL

From a TECHNICAL or DEVELOPER perspective, you may want to know more about how to call the standard SHUTTLE function to produce either ON DEMAND or BULK Barcode Label production.

The following Shuttle Subroutine may be called from any Application :-

Call do.barcodes.print(specname,type,datfname,result)

Specname: - the Key of the Print Layout for the Type being Used (as defined from Business Objects, Barcodes)
Type: - 1 for On Demand, 2 for Bulk
Datfname: -

When type = 1, this is the data string to convert to Barcode
When type = 2, this is the Filename (workfile) that contains the Barcode Label Data.

For example: You are using a workfile with the name 'mybarcodes'. Inside the file, at the time of the call, a number of Records will be found. The system will sort on the Record Keys to determine the order of print. In this example there are 3 Records.

00001 (Key)

02030405-7 (Field 1 Data)

00002 (Key)

02030405-9 (Field 1 Data)

00003 (Key)

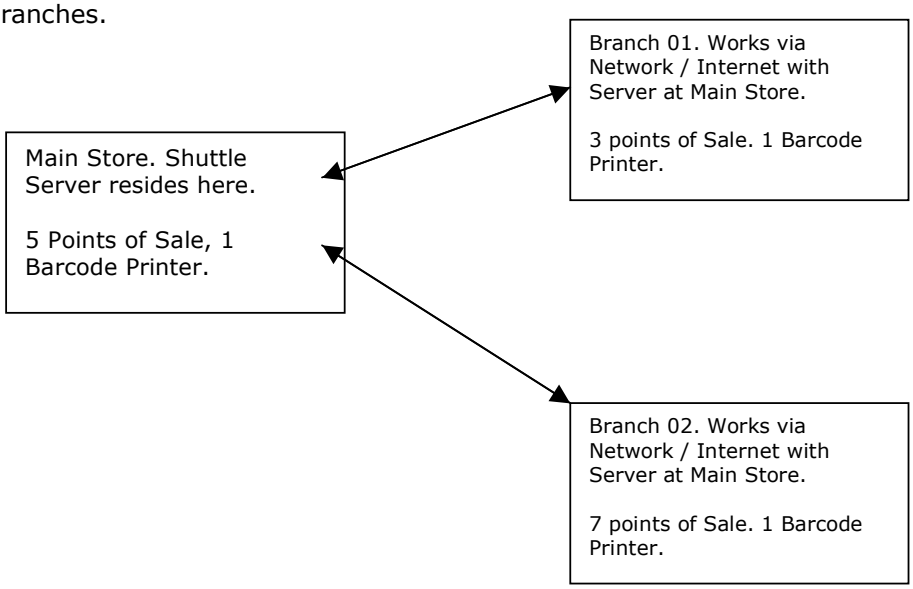
70003000-1 (Field 1 Data)

Since the Record Keys are numbered 1,2,3 they will be printed in that Order. The Data found on Field 1 in each Record is turned into a Barcode in each case, as shown.

Result: - Returns 0 = OK, 1 = No Printer to Use, 2 = Specname not found or not Acceptable, 3 = Workfile Not Found.

Note: The system does not prepare the workfile (your Application does that), nor does it clear the Data from the file afterwards.

Note(2): The SHUTTLE function will automatically know whether Barcode Prints have been done during the current Logon Session and will attempt to use the same Printer as before. If no Barcode printing has been done during the current Logon Session, then the User is prompted to select from the available Printer Names on the current Terminal, i.e. to determine which is the one with Barcode Label Stationery. The Printer in this case is a Windows Printer defined on the Terminal / Desktop hosting the current Logon Session, and NOT a Database spooler (although there is no reason why the printer cannot be a Database spooler in addition, but the selection, assignment and printing is done from the Windows Client perspective [Cybershuttle], and not by the Database spool functions). For example, in a Retail Branch there may be 3 Points of Sale, all of which may share the same Barcode Printer, whereas in another Branch, the Users share a different Barcode Printer, even though both Branches work off the same SHUTTLE / D3 Server that is geographically remote, i.e. not at either of the Branches.



In the illustration above, each Store has a Barcode Printer, because the Sales Staff all need access to such a facility for ON DEMAND Barcode Printing. If only BULK Printing is needed, then it will probably be found at the Main Store, with no such facility in the Branches.