

Getting started with the spine label print program

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General

The program described in this document is a Windows™ program designed for the printing of spine labels, barcodes and similar products, using on data drawn in real time from tables maintained by an installation of the Voyager library system. This program is known to work in the following situations:

- Zebra printer using continuous media (i.e., label stock with no pre-defined labels; printer has a cutter), directly attached via parallel cable to the workstation's LPT1 port. If a printer is attached in this manner, the program bypasses all Windows features, and writes directly to the printer. This method requires a separate printer-specific configuration file.
- Laser printer identified to the Windows system on the local workstation as the default printer, using sheets of labels (these labels must have a known configuration: so many across, so many down, and of a known size)
- Zebra printer using continuous media, whose "EPL2" driver is installed on the local Windows workstation. In this document, and in the program's configuration screens, this attachment method is described as "USB". The program is known to work with a Zebra printer directly attached to the computer via USB cable, and it is *believed* that the program will also work with a network-connected Zebra printer, as long as the proper driver is installed on the local workstation. The Zebra printer is **not** required to be the workstation's default printer. This method requires a separate printer-specific configuration file.

It is believed that the program has been used successfully with other combinations of label stock and attachment methods, but because the author has no experience with them, these are not described in this document. Information about other combinations of attachment method and label stock may be found in the archives of the VOYAGER-L e-mail list, or by querying that list directly.

Installation

FTP these files from Northwestern's download site to some suitable local folder:

SpineLabels.ZIP
vgerspin.ini

If you will be using one of the program options that requires a configuration file, also download the one or more of the ZIP files with names that begin "VgerSpinPrinter" that you will find in the same folder at the download site. (You may be able to use one of these files as given; but even if substantial changes are needed, you'll find it easier to modify an existing file rather than build a new file from scratch.)

Unzip the SpineLabels.ZIP file, and run SETUP.EXE to install the program.

After installation, you can find the shortcut for the printer on the Windows start menu, in the "Northwestern University Library" folder. You can copy this shortcut to your desktop, or to any other place you think will be useful.

Copy the file VGERSPIN.INI file (and the VgerSpinPrinter.ini file if you need it) into to the default folder for configuration files. The location varies with the version of Windows.

- In the most recent versions of Windows, the default location for configuration files is:
C:\Users\<user name>\AppData\local\virtualstore\Windows. The trick here is that the "AppData" folder is a hidden folder in each user's profile. If you cannot see the AppData folder when you are

viewing the contents of the "C:\Users\Note most carefully that if your version of Windows locates configuration files in a sub-folder of the \Users folder, you must configuration the workstation for each different operator that uses the workstation.

- In earlier versions of Windows, the default location for configuration files is the "C:\Windows" folder. If your version of Windows locates configuration files in this folder, the configuration will apply to all users of the workstation.

If for any reason (and under any version of Windows) you are not able, or do not otherwise wish, to use the default location for configuration files as described above, you can tell the program to use some other folder instead:

- Find the shortcut you use to start the program
- Right-click on the shortcut name
- Select Properties from the pop-up context menu
- On the "Shortcut" tab, find the "Target" box. This box contains the path that leads to the program's EXE file, VgerSpin.exe. Add the following information to the end of the shortcut:
 1. A space
 2. The instruction "-i" (this is a minus sign, followed by the letter "i")
 3. Another space
 4. The full path to VgerSpin.INI

For example, if the program is installed as "C:\Program Files\VgerSpin\VgerSpin.exe" and you wish to put the program's configuration files into the "C:\MyConfiguration" folder, change the shortcut to look like this:

```
"C:\Program Files\VgerSpin\VgerSpin.exe" -i C:\MyConfiguration\VgerSpin.INI
```

In this example, the shortcut to VgerSpin.exe is enclosed within double quotes because it contains an internal space. If your preferred configuration folder contains any internal spaces, you must enclose it within its own set of double quotes:

```
"C:\Program Files\VgerSpin\VgerSpin.exe" -i "C:\My Local Configuration\VgerSpin.INI"
```

Configuration

You will have to install and configure out the ODBC drivers on your own. This work has to be done before you can use the spine label program.

When you've got all this done, start up the spine label program. Before doing anything else, click the 'Options' button.

'Files, etc.' tab

- *Data source:* the name of the data source you defined for ODBC.¹

¹ *Notes about the 'DSN':* You use two different programs to establish an ODBC connection to a Vger database. After installing the ODBC drivers themselves, you use the program n8sw.exe (supplied by Oracle, located in the \bin folder of the Oracle installation on the workstation) to create a *database service*. (This program is also available from the 'Oracle' line of the Start|Programs menu, as 'Oracle Net8 Easy

- *Table prefix:* the Oracle prefix for your Voyager production database. Include a full stop at the end of this prefix. (Example: MYDB.)
- *User ID and Password:* an Oracle read-only signon and password. This program does not encrypt the password.
- *File of old orders:* Ignore this. The feature that uses this information only works for Northwestern University.
- *Output file folder:* If you expect to ask the program to write labels to a file, give here the name of the folder the program should use for this file. The folder name should end in a reverse slash.
- *Hotkey for 'Label is OK' button:* The program prints a spine label if the operator clicks the "Label is OK" button. The program can also print a label when the operator presses a pre-defined function key. Use this box to select the function key to use to print a spine label.
- *Hotkey for 'Print barcode' button:* The program prints a barcode label if the operator clicks the "Print barcode" button. The program can also print a barcode label when the operator presses a pre-defined function key. Use this box to select the function key to use to print a barcode label.
- *Hotkey for 'Print Vger #' button:* The program prints a label containing the Voyager record number if the operator clicks the "Print Vger #" button. The program can also print a Voyager record number label when the operator presses a pre-defined function key. Use this box to select the function key to use to print a Voyager record number label.
- *Truncate fund codes when checking for p.o.:* This check-box refers to a feature that is only available at Northwestern University. At Northwestern, if you check this box, the program drops the first comma and all following characters from fund codes when it is searching for purchase orders. (Correct value: checked.)
- *Item barcode is numeric:* If you check this box, the program requires that barcodes will contain only numerals.
- *Remove spaces from barcodes:* If you check this box, the program removes any spaces that the operator may include in barcodes, before searching Voyager for a match.
- *When copying label to Clipboard, remove line breaks:* If you check this box, when the operator clicks the "Copy to clipboard" button, the program removes line breaks before copying the label text to the Windows clipboard for external use.
- *Treat 'other' call numbers (indicator 8) as:* You may wish the program to pretend that call numbers in an 852 field with first indicator "8" are actually some other kind of call number. If you wish this to happen, use this drop-down box to specify the kind of call number that the program should use, instead of the configuration for "other" call numbers.

If you make any changes on the "Files, etc." tab, best practice is to close the options panel, close the program, start the program, and confirm that your changes were saved correctly.

Config.'). The definition of this database service includes the IP address, port number, and the Oracle service name 'LIBR'. You can give this service any name that the program will accept. By a convention which may perhaps lead to some confusion, this service is often itself named 'LIBR'.

The second stage involves the definition of the *data source name*; you use the Microsoft ODBC applet for this. (The MS ODBC applet is found in the Control Panel. Different versions of Windows call it by different names, and use different icons; sometimes it's called 'Data sources'. In Windows 2000, this applet is located in the 'Administrative tools' folder of the Control Panel.) The definition of the data source name consists of four elements: the source's name itself (which can be anything you choose that the program will accept), a description of the source (another piece of free text), the read-only signon for the source, and the database service name you defined with n8sw.exe.

It is the *data source name* you create in the Microsoft ODBC applet that you supply in the DSN box.

It is likely that this will be something other than 'LIBR'. Do not use the service name you define within n8s2.exe; the program won't know what to make of it.

'Printers' tab

- *Printer name:* If you are using the "USB" option, use the drop-down box to find the name of the printer you wish to use to print labels. This does *not* need to be the printer defined to Windows as the default printer.
- *Printer tray:* If it is relevant to your laser printer (doesn't apply to Zebra printers), use the drop-down box to find the paper tray the program should tell Windows to use.
- *Printer connection method:* Select the method the program should use to talk to your printer.
 1. If you're using a printer from Zebra Technologies Corporation connected to the workstation's LPT1 port by a parallel cable to print on continuous label stock, check the 'Use LPT1 and printer configuration file' box. If you check this box, you must also formulate appropriate instructions in the VgerSpinPrinter.INI configuration file. (See below.)
 2. If you're using sheets of laser printer labels, check the "Use LPT1 with NO configuration file" box.
 3. If you're using a Zebra printer defined to Windows and wish the program to send labels to the printer driver, check the "Use USB-attached printer with configuration file" button. (The printer doesn't actually have to be attached via USB cable. The spine labels program talks to the printer driver; as long as the printer's driver knows how to find the printer, you should be good to go.) If you check this box, you must also formulate appropriate instructions in the VgerSpinPrinter.INI configuration file. (See below.)

'Labels' tab

- *Label type:* Indicate whether you're using a continuous strip of labels or sheets of laser printer labels. 'Continuous stock' is a big long strip with no individual labels on it; this is *not* the same as a long strip that has separate labels of some pre-defined length.
- *Paper size:* This is only available if you're printing on laser-printer sheets. Select the paper size and orientation.
- *Native orientation* and *Flipped orientation:* If you're printing on a continuous strip of labels, the only options you have are "Left margin" and "Top margin for horizontal labels", and the "Flipped orientation" tab is not available to you. Supply suitable values in the available work areas.

'Fonts' tab

Use this panel to select the font the program will use when printing labels, and when formatting the online display of a label. (The same font may not be available for both.) You may want to make the online font larger than the printer font, to make the screen display legible from a distance. For Zebra printers, the font selection for printed labels is made via the configuration file, not here.

'General' tab

The version number on this tab is the program's own version number; this may be of value if there is a problem with the program, but is otherwise irrelevant.

- *Chronology/Year from:* Indicate whether the program should look for chronology-type information in the Chronology or Year area of an item record, or both (in either order).
- *Copy number from:* Indicate whether the program should look for the copy number in the item record, or the 852 field, or both (in either order).
- *Copy number prefix:* Give any prefix that should be added to the copy number extracted from the item or holdings record. ('c.' is a popular thing here.)
- *Print 2 copies of each label:* If you check this box, the program will produce duplicates of each label.

'Components' tab

This tab, the heart of the program's configuration, is rather complicated. All of the settings presented on this tab are available for each type of call number, and can be different for each type. You only need to configure the program to work with the call number types you actually use at your institution.

For example, if you're primarily an LC shop, but also label government documents, and occasionally need an 'other' call number, you'll need to make all these label decisions for the LC, SuDocs and Other call number types; but you can ignore the settings for Dewey, NLM and so on.

To display the settings for a particular call number type, click the radio button for the call number type at the top of the Components display. **Before inspecting or changing any settings on this tab, make sure you've set to the right type of call number.**

- The **ELEMENT** column names the 10 pieces of information related to call numbers that you can draw on to formulate a call number label. Use the check-boxes in the **INCL?** column to indicate whether or not you wish each of these types to appear at all. Most of the information included in call number labels comes from the 852 field, and is identified as such; other information comes from item records. If (by leaving the INCL? box unchecked) you indicate that you don't want to include a particular kind of information in your labels, then the rest of the settings for that type of information are irrelevant, because the program will never use them.
- The **SEMI**, **COL.**, **SP.** and **OTH. BRK.** columns tell the program how to divide a call number element into individual lines. By making checkmarks in the SEMI., COL. and/or SP. boxes for an element, you tell the program to make a new line for each internal semicolon, colon, or space. If you wish the program to divide an element at some other mark of punctuation, place the mark(s) of punctuation in the OTH. BRK. column. If you don't want the program to split an element into separate lines at all, don't check any of these boxes, and leave the OTH. BRK box empty.
- The **STIRP** box tells the program to remove the indicated characters (punctuation, or anything else) from an element. If you don't want the program to remove anything from the element, leave this box empty.

For example, if you want to remove the colon and parentheses from the Enumeration and Chronology elements, type ':()' into the PUNCT boxes for those two elements.

- The **ADD** box tells the program to add punctuation to each line of the element. If you don't want the program to do this, leave this box empty.
- The **SPEC** check-box does different things for different call number elements. (This column of check-boxes is not available for all elements.)

If your labels may include a location (852 subfield \$b) or a shelf location (852 subfield \$c) and if you wish the program to add parentheses around the location, check the box in the SPEC column for that element.

If the classification portion of your Library of Congress call numbers appears (at least some of the time) all strung together, with line breaks not indicated, and you wish the program to break the LC classification number into separate lines, check the box in the SPEC column for subfield \$h. (This feature has not yet been implemented for other classification types.) See the following description of the division rules for LC classification numbers.

- If you want an element, when present, to be the last element on its line (i.e., if you want a line break *after* the element), place a checkmark in the appropriate box in the **BRK?** column. Normally, you will check this box for each element so that the following element starts a new line.

For example, if you want a line break after the location name, but you want the call number prefix to be on the same line as the following element, you'll place a checkmark in the BRK? box for Location, but none in the box for Prefix. Most of the time, all of the boxes in the BRK? column will be checked.

- If you want the element to be preceded or followed in the label by a blank line, place a checkmark in the box in the **BLANK?** column. By default, this blank line comes before the element in question; if you want the blank line to come after the element, put a check in the 'Blank' after box as well. Note that the 'Blank after' and For 'Blank' use boxes apply to all elements in a call number of a given type.

If, instead of a blank line you wish the program to include some other characters either before or after the element, type those characters into the For 'Blank' use box at the bottom of the panel. For example, to instruct the program to print a line of hyphens after the location in a call number, click the BLANK? box for Location, click the 'Blank' after box, and type a line of hyphens (as many or as few as you want) into the For 'Blank' use box.

- Use the numbers in the **Sequence** column to specify the order in which the program should include call number elements in the label. If, for example, you want the location name to appear at the end of the call number rather than at the beginning, raise the 'Sequence' number for the 'Location' element to some high value. (There are 10 elements listed, so 10 is the highest possible number.)
- In the *Maximum line length* box, give the maximum number of characters allowed on a single line.
- The *Break at* box contains punctuation or other marks at which the program should break lines that are longer than the length given in the Maximum line length box.
- If the *Include both enum and chron if both are present* box is checked, the program will print both enumeration and chronology (when available in an item record) on the label. If this box is not checked, the program will print only the enumeration when both are present.

The last two lines in the list of components are for free text to insert into every label—sometimes called a 'stamp.' The is provision for two different stamps. If you wish to use this feature, give the text in the box, and set the other options as appropriate.

'Component rules' tab

For Library of Congress call numbers, inspect the entries on the Component rules tab. (This tab is only available when the you click the LC radio button on the Components tab.) You can ask the program to force line breaks at four different points in 852 subfield \$h even if the classification number doesn't contain blanks or other separator characters.

- You can ask for a line break between the classification letters and classification number

If you check this box, this classification number:

\$h LB1234

will appear as:

LB

1234

- You can ask for a line break between the whole number portion of the classification number and any decimal portion of the number

If you check this box, this classification number:

\$h LB1234.5

will appear as:

LB
1234
.5

- You can ask for a line break before any Cutter number (prefixed by a full stop) that appears in 852 subfield \$h

If you check this box, this classification number:

\$h PS2345.A23

will appear as:

PS
2345
.A23

- You can ask for a line break between the second of two Cutter numbers that appear in subfield \$h

If you check this box, this classification number:

\$h LB1234.A23C42

will appear as:

LB
1234
.A23
C42

'Special tables' tab

This tab lists auxiliary files associated with certain call number elements, or with bibliographic records in general.

- The 'locations with replacement spine label captions' table allows you to specify different spine label texts than those defined in the Voyager SysAdmin client. (For example, the spine label names you can define in SysAdmin are limited to 12 characters; you can define longer spine label names here.) Any alternative spine label location names are subject to the line-breaking rules defined for locations on the 'Components' tab.
- The 'Funds associated with bookplates' table allows you to define certain fund codes that call for special attention on the part of the operator. When the operator asks for a spine label for an item ordered on one of these funds, the program presents the operator with a special message. You might use this feature to notify the operator that a particular fund-specific bookplate needs to be attached to the item. This table is only of interest to workers at Northwestern University Library.
- The 'Replacements for call number prefix ...' and 'Replacements for call number suffix ...' tables allow you to specify replacements for texts that may appear in subfields \$k and \$m, respectively, of call number fields. (You might choose to use an abbreviation in subfield \$k or \$m, but have that abbreviation expanded in spine labels.)
- The 'locations receiving punctuation before call number lines' table allows you to tell the program to add a 'plus' sign (+) to certain location names.

When you're done working with the options on all of the tabs, save your settings by clicking the OK button. You should now be ready to use the program to print spine labels. In normal day-to-day use, you don't have to deal with these settings. Once you've got the program configured the way you want it, you should be able to ignore the settings altogether.

Using the program

It doesn't matter whether or not a Voyager client is running; the spine label program doesn't use any part of the Voyager clients.

By default when you start the program the cursor is in the 'Next barcode or item #' box. Whenever you want to read in a barcode or type a Voyager item record number, the cursor should be in this box.

The program needs you to identify an item record so it can produce a label. There are several different ways you can identify item records.

- The easiest way to do this is to use a scanner attached to the PC to scan an item barcode into the 'Number to search' box, but you can also type the item barcode number into the box if you want to. If you scan an item barcode and the scanner hits the Enter key for you after it's filled in the barcode, so much the better—you'll scan in the barcode and the program will automatically search for it; if the scanner doesn't hit Enter for you, you'll have to click the 'Barcode #' button. The program looks up the barcode number, then retrieves the associated item record.
- If you don't have the item barcode number but you have the item record number, you can type an item record number into the 'Number to search' box and click the 'Item #' button. The program retrieves the item record directly.
- You can call up an item record in the Voyager cataloging client, then click the 'Get # from catalog instead' button. The program figures out the Voyager record number of the currently-displayed item record, then retrieves the item record directly.

No matter which method to use to identify an item record, the program finds the holdings record to which that item record is linked. The program finds the 852 field in the holdings record and figures out what kind of call number it contains. Using your instructions (principally from the Components tab of the Options panel) for that kind of call number, the program selects elements from the holdings and item records, and presents its best guess at the correct call number label. The program presents the result of this work on the left side of the program's main panel.

You can treat the spine label window as a little text processor: you can add, modify and delete text, and you can copy, cut and paste with CTL-C, CTL-X and CTL-V.

When the spine label in the window is just the way you want, hit the F8 key (or whatever key you've decided on) or click the 'Label is OK' button.

- If you're printing labels on a Zebra printer, the label will appear immediately.
- If you're printing a sheet of labels, the spine label will not immediately come out of the printer. The program stores labels in a buffer until it has a certain quantity, and then it releases the whole buffer at once. For laser printer labels, the program stores up one sheet's worth. You can tell how full the current 'page' is, by looking at the status window that appears at the bottom of the program's panel. As you click the F8 key or click the 'Label is OK' button, the indicator in this window should show how much room is taken up, and how much is left. When the buffer is ready to overflow, the program will release it to the printer, and reset the status bar.

If you're printing on sheets of labels rather than a continuous strip, each time the program is ready to start a new page, it asks you to indicate (with a dialog that corresponds roughly to your defined label layout) the location of the first label at which it should start printing. This is because a given session may only print part of a page; you want to be able to start printing the next time at the next available label, so you don't waste any label stock.

If you're printing on sheets of labels, you'll see a button labeled 'Reprint'. Pressing this button allows you to print another copy of the sheet of labels printed most recently.

At any time, if you want to force the program to release to the printer all of the labels that it's holding, you can click the 'Print the buffer' button.

If you want to view the bibliographic, holdings and item records associated with the current label, click the 'View records' button.

From time to time, you may want to print a bunch of labels for a multi-piece set. For example, you might want to print labels for a set of encyclopedias, or a set of videorecordings. You could of course scan each barcode for each volume and print each label in the usual way. If you want, you can instead ask the program to print the whole set of labels at once, saving you a bit of time and trouble. (In order for this to work, the volume number or other numbering stuff must come from the Enumeration or Chronology field in the item record; and the numbering must be a simple sequence. The program will be able to handle 'v. 1 through v. 15' with no problem, but it won't be able to handle 'v.1 pt. 5 through v. 7 pt. 2' or any similar complicated sequence.) To generate labels for a set, scan the barcode for the first volume or piece for which you want to print labels. (This doesn't have to be 'v.1', just the first volume you're interested in.) Then, click the 'Multiple volumes' button. The program will extract the beginning number from the call number, and ask you for the ending number. When you supply the ending number, the program generates the entire sequence at one go.

Similarly, from time to time you may wish to print a number of copies of a given label. If you only need the occasional second copy, the easiest thing to do is just to press the Label is OK button (or press F8) a second time. If you need a larger number of labels, you can click the 'Multiple copies' button. The program asks you how many copies you need, and it adds that many copies of the label to the output buffer.

If you want to print a label for something that doesn't have a barcode, you can type the label directly into the label box, and then click the Label is OK button.

If you are printing to a Zebra printer and using a configuration file:

- Click the 'Print barcode' to print a barcode label instead of a spine label. The appearance of this barcode is controlled by instructions you provide in a configuration file.
- Click the 'Print Vger #' button to print the Vger bibliographic record number as a barcoded label.
- Check the 'Print as single horizontal line' box to print the call number text in one long string. This gives you a label you can trim and use on narrow items.

Configuration file for Zebra Technologies Corporation printers

Printers from Zebra Technologies Corporation come with their own programming language. You can draw up a set of instructions in this language to generate labels in the format you wish, and then tell the spine label program to use your instructions. If you do all of this configuration correctly, you'll be able to print not only normal spine labels, but spine labels designed for narrow items, and also barcode labels.

To do all this, you'll need to create a file called `VgerSpinPrinter.INI`, and store that file in the default folder that contains other Windows initialization files. There's a version of this file on the FTP site mentioned at the start of this document; you may find it easier to modify this file rather than create your own from scratch.

The file `VgerSpinPrinter.INI` contains four main sections, each of which contains several stanzas:

- A section that describes general things about the printer. This section contains these stanzas:
`PrinterLineTermination`
`PrinterTextSubstitutions`
- A section that describes normal vertical spine labels. This section contains these stanzas:
`PrinterGeneralVertical`
`PrinterBeforeEachLabelVertical`
`PrinterLineVertical`
`PrinterAfterEachLabelVertical`
- A section that describes horizontal spine labels (with the text on a single line). This section contains these stanzas:
`PrinterBeforeEachLabelHorizontal`
`PrinterLineHorizontal`
`PrinterAfterEachLabelHorizontal`
- A section that describes barcode labels. This section contains these stanzas:
`PrinterBeforeEachLabelBarcode`
`PrinterLineBarcode`
`PrinterAfterEachLabelBarcode`
- A section that describes Voyager numbers printed as barcodes. This section contains these stanzas:
`PrinterBeforeEachVgerNumber`
`PrinterLineVgerNumber`
`PrinterAfterEachVgerNumber`

With one exception, the lines in each stanza are numbered consecutively, starting with 1.

The `PrinterLineTermination` stanza contains a single line. This line lists the decimal ASCII values of the character or characters that end each line sent to the printer. For typical Zebra printers, this stanza contains one line, identifying the linefeed character (character 10) as the line termination character.

The `PrinterTextSubstitutions` stanza identifies substitutions the program should make in call number text. Zebra printers reserve the double quotation mark as delimiters for literal text to be printed, and they reserve the reverse slash as an indication that the following character should be treated literally. Each line in this stanza lists the decimal ASCII value of each character that must be substituted, and the decimal ASCII value of the replacement character(s). For typical Zebra printers, this stanza contains two lines, changing the single reverse slash to a double reverse slash, and changing the double quotation mark to a reverse slash plus the quotation mark. It is important that these two lines appear in the proper order.

The `PrinterGeneralVertical` stanza contains three elements that allow the program to make adjustments to the basic printing line (in the `PrinterLineVertical` stanza) as it prepares the label. The `IncrementStart` element identifies the value to be used as the second parameter in the first line of text sent to the printer; the `IncrementInterval` element identifies by which the `IncrementStart` value should be incremented for each successive line. For example, if these elements have the values of 20 and 35, and given the appropriate instruction (`'A 10,{inc}, ...'`) in the `PrinterLineVertical` stanza, the program will send lines like these to the printer for a 3-line label:

```
A10,20,0,2,2,2,N, ...
A10,55,0,2,2,2,N, ...
A20,70,0,2,2,2,N, ...
```

The `FontSize` element in the `PrinterGeneralVertical` stanza allows for more elaborate adjustments in a suitably-constructed basic printing line. This element allows you to adjust the increment, and the size of the print, based on the number of characters in the longest line of a label. This element contains one or more segments, separated from each other by a slash. The first item in each segment is the maximum number of characters allowed in a line for a given setting. This is separated from the remainder of the segment by a space. The first element in the remainder is the increment interval to be used for a given print size, followed by a colon and the font selection, horizontal multiplier and vertical multipliers. Segments in this element should be listed in increasing order by the maximum number of characters allowed in a line. The last segment in the element should not specify the number of characters allowed; this is the default setting.

```
FontSize=9 35:2,2,2/11 30:1,2,2/15 25:3,1,1/ 20:1,1,1
```

If a line contains 9 or fewer characters, the vertical interval is 35, the font selection 2, the horizontal scaling 2 and the vertical scaling 2. This produces 14-point characters.

If a line contains 10 or 11 characters, the vertical interval is 30, the font selection 1, the horizontal scaling 2 and the vertical scaling 2. This produces 12-point characters.

If a line contains 12, 13, 14 or 15 characters, the vertical interval is 25, the font selection 3, the horizontal scaling 1 and the vertical scaling 1. (This produces 10-point characters.)

If a line contains more than 15 characters, the vertical interval is 20, the font selection 1, the horizontal scaling 1 and the vertical scaling 1. This produces 6-point characters.

The `PrinterBeforeEachLabel` and `PrinterAfterEachLabel` stanzas in the remaining sections contain zero or more lines (numbered from 1) instructing the printer to configure itself in some manner. The program sends instructions in the `PrinterBeforeEachLabel` once, preceding the text of each label; it sends instructions in the `PrinterAfterEachLabel` stanza once, following the text of each label.

The `PrinterLineHorizontal` and `PrinterLineVertical` stanzas contain one element, numbered 1. This is the skeletal instruction for the program to use when sending each line of text to the printer. If the program should insert into the label values calculated from elements in the `PrinterGeneral` stanza, include the text `{inc}` at the appropriate point in the instruction. Include the text `{text}` at the point at which the program should insert a line from the call number.

```
1=A10,{inc},0,2,2,2,N,{text}
```

This instruction tells the program to substitute calculated values for the vertical offset, based on information in another stanza, and to add the text of one call number line at the end.

The `PrinterLineBarcode` and `PrinterLineVgerNumber` stanzas contain three elements. The element numbered 1 gives the instruction for the format of the barcode (which will either be an item record's barcode number, or a Voyager bibliographic record number); the instruction `{text}` in this line tells the program where to insert the barcode or record number. The element numbered 0 (not required) contains a literal piece of text (such as your institution's name) to display above the barcode. The element numbered 2 (not required) tells the program about text to print underneath the barcode. The label `{call}` in this line tells the program to insert the item's call number.

```
0=A25,360,3,3,1,1,N,'Northwestern Univ. Libr.'
```

```
1=B55,360,3,3,1,3,100,B,{text}
```

```
1=A200,360,3,1,1,1,N,{call}
```

These instructions tell the program to print a line of constant text, the barcode, and the call number, on barcode labels.