Forms on Demand

# Fod - OMR For Optical Mark Readers

## **User Manual**

July 2010

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# OVERVIEW

This version of FoD-OMR provides for printing of both OMR-from-Image zones and Constrained Handprint fields, both of which are read from the images of pages captured by conventional page scanners. Updates include the addition of PDF417 bar code, used to supply data also able to be read from an image. All of the former facilities are retained. A summary of the features of FoD-OMR includes the facilities listed at the end of this overview.

Within the remainder of this manual, the section **"Getting Started with FoD-OMR, Setting up the Response Grid"** can be ignored for non-OMR forms and the chapter **"Creating OMR Zones"** has been amended to cover both OMR and from-Image zones.

The additional object type "Constrained Handprint" is provided to draw character cells in the "blind" color. This object type is the subject of a new chapter.



## **Summary of Capabilities**

For OMR forms:

- Predefined response line format for most common OMR scanner layouts, with "build your own" facilities for uncommon scanners or custom work.
- Define the timing track, allowing individual heights of the timing marks, numbers of marks on that side and position of each of the marks on that side.
- > Single or double sided forms, with each side in any orientation.
- Building of OMR responses in either matrix or random format.
- Wide choice of OMR response shapes and attributes.
- Responses optionally include framing, title blocks, shading of alternate columns, dividing lines between choice sets and text associated with choices and positioned relative to each of the responses.
- Responses are able to be moved and position automatically to the underlying timing track and column layout.
- Responses take all of their frames, associated texts and attributes with them as one object when moved or duplicated.
- Bar codes and/or OMR pre-slugging, either fixed or taken from data.

For -from-Image forms:

- > Tombstones on any/all corners of the page (for alignment).
- > Constrained Handprint fields, with control over character cell size, interval between cells, lines (or not) and shading (or not).
- OMR-from-Image zones with all of the characteristics of OMR zones, but able to be placed anywhere on the page.
- > PDF417 bar codes to handle bulky data concisely and accurately.

For Bar Code Printing

> Able to print to any Windows printer, including Zebra, Paxar, Intermec, Datamax, sales slip printers, ticket printers etc.

- Most common formats of bar code including PDF417 and all of the UPC/EAN codes.
- > Calculates check digits where required.
- > Full UPC-128/UPC-128 bar codes, validation of the AIs with valid data checking against the AI.
- > Easily and fully automated using the companion FTSpooler program, without programming.
- > Note: All of the above barcode features are available from FTLabelPrint. See www.formtrap.com.

#### **General Printing**

- Letters with variable inserts into paragraphs, PostNet bar codes, signatures etc. Use for all standard letters, student advices, report cards, etc. If this solution runs out of "puff", migrate to the full FormTrap solution (www.formtrap.com).
- > Double-sided brochures and advertising materials, with custom inserts.
- Mailed surveys using from-Image and Constrained Handprint capabilities.

#### **Data Handling**

- CSV or named CSV files (named means no requirement to define the data field names, simply use them).
- > FLAT (Fixed Length ASCII Text) files.
- name=data files (eg. DocType=Invoice, DocNum=I54321) produced by FormTrap. This allows sourcing data from a standard system report and forwarding that data to the labelling function.

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# GETTING STARTED WITH FOD-OMR

## The Design Workspace

The FoD-OMR design workspace is where forms take shape, and FoD-OMR can have many forms open at once. This chapter provides information about setting up FoD-OMR to work with your Optical Mark Reader or Image Scanner, and using the design workspace to create OMR forms.



Figure 1.1 The FoD-OMR design workspace with an empty form

#### **Tool Buttons**

The FoD-OMR window has four main toolbars for quickly accessing commands: the **Forms** toolbar has functions for saving, loading and printing forms and the edit tools; the **Draw** toolbar has functions for placing response zones, text and pictures; the **Formatting** toolbar has functions for changing the style of text; and the **Tools** toolbar has special functions for aligning, nudging and viewing objects.

Two additional toolbars, the **Zoom** toolbar and **Alignment** toolbar, can be accessed from the Tools toolbar. By default these toolbars "float" but can also be dragged and anchored in the toolbar area if more convenient.

As each function or command is discussed in this guide, its tool button is shown on the left of the page.

#### Status bar

Beneath the design workspace is the status bar showing the locations of the mouse and any selected objects, and selected object dimensions (see Figure 1.2) Channel and Row are shown only for OMR forms.



Figure 1.2 The Status Bar

## Setting Up the Design Workspace

Paper Orientation and Double sided printing are invoked from **Page Setup** ... (from the **File** menu item):

| Page setup   |           |
|--|-----------|
| Paper: A4  |           |
| Grid: 48 channels 💌  |           |
| Orientation:   |           |
| Portrait (timing marks on left)<br>Portrait (timing marks on right)<br>Landscape (timing marks on top)<br>Landscape (timing marks on bottom) |           |
| Double sided printing (duplex):  |           |
| Simplex  | )         |
| Tombstones   | OK Cancel |

Figure 1.3 Page Setup Options

#### Paper Size

Select a paper size for your printer. To change a form's page size, select one of the standard page sizes available in the list. Custom page sizes can be selected for special printers or paper sizes.

#### Orientation

Orentation should be chosen to reduce skew on laser printed forms, and alternately, to reduce sheet damage where the sheet enters the scanner on commercially printed forms.

**Laser printed forms** should generally have timing marks bottom or right for normal use, allowing response position to be closer to the timing marks, thus reducing skew.



Figure 1.4 Reccomendation - Laser Printed Forms

**Booklet forms** should be printed to avoid damage on the timing mark entering the scanner first, see figure 1.5 for a sheet fed from right to left through a scanner.



Figure 1.5 Reccommendation - Booklet Forms

Your scanner may include restrictions on Form ID marks (generally best on the first line into the scanner) and for paper folds across the short dimension (generally use a large timing mark and IGNORE marks in this area).

Double sided printing (duplex)

Select the type of double sided printing (duplexing) to be used for the form. Choose from simplex (one sided printing), flip on long edge or flip on short edge.

FB

When Duplex printing is selected the Front and Back buttons on the toolbar become available. Click the **Front** button to design the front of the form and click the **Back** button to design the back of the form.



- Number 1 indicates the front of the form
- Number 2 indicates the back of the form
- The arrows indicate how the form is fed through the scanner for a Right to Left scanner.

#### Tombstones

Tombstones...

at the bottom left should be pressed if you require a form where the data is scanned from an image rather than being defined by OMR marks. If you require a Tombstone form, select the box, otherwise go to **Grid** below to set up an OMR form.

When you press Tombstones... this screen appears. Enter the required tombstones by ticking their positions (which are relative to the Orientation) and complete the Height and Width.

| Page setup  | ×   |    |
|---|---|----|
| Paper: A4   | •   |    |
| Grid: 48 channels   | I   |    |
| Orientation:  |   |    |
| Portrait (timing marks on left)<br>Portrait (timing marks on righ |   |    |
| Landscape (timing marks on<br>Landscape (timing marks on          | bottom)   |    |
| Double sided printing (duplex                                     | Tombstones  | X  |
| Simplex   | V Too left  | _1 |
| Tombstones  | Top right   |    |
|   | A Bottom left   |    |
|   | Bottom right  |    |
|   | Height (A): 90.00 (300 -  |    |
|   | Width (B): 150.00 (30 -   |    |
|   | Vertical distance from the edge of the page (C): 150.00 (30     |    |
|   | Horizontal distance from the edge of the page (D): 150.00 (30 - |    |
|   | OK Crew   | 1  |
|   | Cance   |    |

Figure 1.6 Tombstones

Ignore the remainder of this chapter for from-Image forms.

#### Grid

All OMR forms have a timing track (a row of black boxes on the long edge of the page) that is scanned by the form reader to determine where response positions can be found.

At each timing track, the OMR looks horizontally across the page for marks to see if a response has been filled in. The information collected from the responses is then translated by the reader according to the zone the response is in, and the responses on the form can then be interpreted.

FoD-OMR automatically sets the timing track and response positions according to the settings for your reader. The position of the timing track on the page is determined by the page layout.

To change the form's orientation and set up the response grid:

Select **Page Setup** from the File menu.

| Page set           | tup 🔀                        |
|--------------------|------------------------------|
| Paper:             |                              |
| Grid:              | 48 channels                  |
| Orientati          | on:                          |
| Portrait           | (timing marks on left)       |
| Portrait<br>Landsc | (timing marks on right) =    |
| Landsc             | ape (timing marks on bottom) |
| Double s           | sided printing (duplex):     |
| Simplex            |                              |
| Tombs              | tones OK Cancel              |

Figure 1.7 Page setup options

The Response Grid is a set of possible positions, aligned with the timing track, where the reader scans for responses. On your form design, the response grid is shown as red dots. The position of the timing marks defines one dimension of the grid, the other is defined by the read head of the OMR scanning the form.



Figure 1.8 The Response Grid

## To change the response grid, select a compatible grid for your OMR reader, or you can create a custom definition.



Note:

Ensure you select the horizontal timing mark spacing compatible with your OMR scanner.

Creating a custom grid definition

<u>.</u>..

Click the **Finder** button next to the **Grid** list to create a custom grid definition.

| id definition                       |       |            |            |
|-------------------------------------|-------|------------|------------|
| Timing line                         |       |            | OK         |
| Distance from edge of the page (A): | 240   | 3 1        | Cancel     |
| Width (B):                          | 180   | 3          | C          |
| Offset from mark positions (E):     | 0     | <b>_</b> - | odve ds    |
| onsection mark positions (E).       | 1.    | -          | Delete     |
| Two sets of channels<br>Set #1      |       |            |            |
| Number of columns:                  | 48 •  | <b>B</b>   | E<br>P P D |
| Start at (C):                       | 540 📩 | Ă          | D          |
| Gap between mark positions (D):     | 200   |            |            |
|                                     |       |            | Marks      |

Figure 1.9 A custom grid definition - 1200 DPI measurements

To change the position of the timing track, set the following dimensions:

- > The distance from the edge of the page to the outer edge of the timing mark (value **A** on the dialog box diagram).
- The width of the timing mark (value **B**).
- > The offset of the center of the possible response positions from the center of the timing marks (value **E**).

The following settings define a channel bank:

- > The number of columns in the channel. This is the maximum number of response positions along each timing line.
- ▶ The distance from the paper edge to the middle of the first column (value **C** in the dialog box diagram in Figure 1.9).
- The distance between response positions in the column (value **D**).

If your OMR supports two channel banks, you can create banks by clicking **Two sets of channels** and setting up the second bank.



Figure 1.10 Two channel banks

To change the shape and size of the timing marks, click the **Marks** button and set the following thresholds:

| Mark                         | ? ×        |
|------------------------------|------------|
| Minimum size of the mark:    | OK         |
| <sup>66</sup> <u>→</u>       | Cancel     |
| Maximum size of the mark:    |            |
| 300                          |            |
| Minimum space between marks: | ļ <b>ļ</b> |
| 84                           |            |

- Minimum size of the mark and Maximum size of the mark set height threshold for all timing marks
- > The **Minimum space** between marks sets the smallest distance required between marks.



Figure 1.11 Timing mark settings

Scanners using any channel as the timing line

Some scanners (such as DRS) have the capacity to use any channel as the "Clock Mark" (Timing Line) channel. In Figure 1.12 are the form and the Grid window for a form of this type. A central timing line removes skew, particularly on lasers such as Xerox large scale equipment where sheet travel is long edge leading.



Figure 1.12 Clock Mark (Timing Line) Centered Form

We have used 102 timing lines per A4 sheet, double sided, collecting 400 individual observations per sheet successfully in huge applications using a short distance from central timing line and an over-large response position for Australian Elections.

Standard 40-channel read head forms are successfully printed on lasers with standard 1/4" unprintable margins by using the first of the normal data columns for the timing mark.

Changing the deafult mark Width and Distance from Paper Edge

As shown above, **Distance from edge of paper (A)** and **Width (B)** are readily adjusted. If the particular laser printer you wish to use is slightly "off", ensure the middle of the response marks is precise by adjusting **Start at (C)**.

#### Saving the custom definition

Once you have created custom timing line and channel definitions compatible with your OMR, click **Save As** and type a grid name to store the grid definitions in the list available from the Page setup dialog box.

Now that the design workspace is set up for your OMR, the first step in creating an OMR form is to create the timing line and set up the response grid ready for OMR zones.

Deleting a customer definition

Click **Delete** to remove a redundant custom definition.

## Setting up the Response Grid



To place the timing lines on your form, click **Timing Lines** tool button to open the Timing Marks dialog box.

| Timing marks   | ×             |
|--|---------------|
| Number of timing marks:  | OK<br>Cancel  |
| Offset from edge of the page (A):<br>0.25 in   |               |
| Size of timing marks (B):       0.055 in     Image: Compare the second se | A             |
| Space between timing marks ( <u>C</u> ):<br>0.13 in  | tc<br>↓ ■ ↓ c |

Figure 1.13 The Timing Marks dialog box

The default timing mark values are taken from your *grid definition* (see "Creating a custom grid definition" on page 1-10), but you can enter custom values for:

- > The **Number of timing marks** that appear on the edge of your form.
- > The distance between the paper edge and the centre of the first timing mark (value **A** on the following diagram).
- The height of each mark (value **B**).
- The space between mark centres (value **C**).



Figure 1.14 Timing marks settings

When you click **OK**, each timing mark appears in red with editing *handles* at its corners, and the entire line has black handles. This means you can change the position of the timing marks, and move them around your page so you can accurately place response grids.

The black handles that appear around the all the timing marks allow you to set the height of the timing track on the page, and the handles around each timing mark set the position of each mark on the timing track.



To change the size of the timing track and the placement of the channels, select a mark to shift, and drag it with the mouse to its new location.

Figure 1.15 Editing the timing track

#### Changing timing mark positions

To spread or shrink the entire set of timing marks, drag the black handles to proportionally change the spacing and size between timing marks.

You can also move a group of timing marks by selecting multiple marks (either by clicking them with the Shift key down, or clicking and dragging the mouse around a group) and dragging them to a new location on the timing track.

#### Timing mark dimensions

You can quickly set the dimensions of timing marks, or set the spacing between timing marks from the shortcut menu by right-clicking a timing mark:

- Select **Dimensions** to open the timing mark dialog box and enter an offset from the paper edge and a height for the mark, the size of the timing mark and the spacing between marks (see Figure 1.14).
- > Select the **Sizes** menu to set the size of each mark to either the largest or smallest size.
- Select the **Spaces** menu to set the distance between each mark, or select **Space** evenly to distribute the marks evenly along the timing track.

Once you have set up your timing marks, select **Apply changes** from the shortcut menu to return to your form.

### Manually setting timing marks



You can change the size and spacing of the timing marks by selecting the timing line and clicking the **Properties** button (or pressing CTRL+E).

| Timi               | ng marks            |       |  | ×           |
|--------------------|---------------------|-------|--|-------------|
| <u>N</u> un<br> 32 | nber of timing marl | OK    |  |             |
| N                  | Space               | Size  |  | Cancel      |
| 1                  | 0.25                | 0.055 |  |             |
| 2                  | 0.13                | 0.055 |  |             |
| 3                  | 0.13                | 0.055 |  |             |
| 4                  | 0.13                | 0.055 |  |             |
| 5                  | 0.13                | 0.055 |  | Mode        |
| 6                  | 0.13                | 0.055 |  | 🖲 Edit      |
| 7                  | 0.13                | 0.055 |  | C Select    |
| 8                  | 0.13                | 0.055 |  | ,           |
| 9                  | 0.13                | 0.055 |  | Cot sizes   |
| 10                 | 0.13                | 0.055 |  | Set sizes   |
| 11                 | 0.13                | 0.055 |  | Set spacing |
| 12                 | 10.12               | 0.055 |  |             |

Figure 1.16 Manually setting timing marks

In **Edit** mode, you can type in the values for each timing mark, or set the same value for a dimension by clicking either the **Set sizes** or **Set spacing** button.

In **Select** mode, you can select a range of values by dragging with the mouse and clicking either **Set sizes** or **Set spacing** to set the values for the selected range.

Click the **Delete** button to delete the selected timing mark or range.

| Timi              | ing marks         |       |           | ×         |       |       | 1 |
|-------------------|-------------------|-------|-----------|-----------|-------|-------|---|
| <u>N</u> um<br>40 | ber of timing mar | ks:   | Units: in | ОК        | · ·   | · ·   |   |
| N                 | Space             | Size  | ^         | Cancel    |       |       |   |
| 1                 | 0.33              | 0.077 |           |           |       |       |   |
| 2                 | 0.20              | 0.077 |           |           | 1.1   |       | 1 |
| 3                 | 0.20              | 0.077 |           |           | 1 A A | · ·   | • |
| 4                 | 0.20              | 0.077 |           |           |       |       |   |
| 5                 | 0.20              | 0.077 |           | Mode      |       |       |   |
| 6                 | 0.20              | 0.077 |           | ⊂ Edit    | · · · |       |   |
| 7                 | 0.20              | 0.077 |           | Select    | 1.1   |       | 1 |
| 8                 | 0.20              | 0.077 |           |           | 1.1   | · ·   | • |
| 9                 | 0.20              | 0.077 |           | Set sizes |       |       |   |
| 10                | 0.20              | 0.077 |           |           |       |       |   |
| 11                | 0.20              | 0.077 | Sizo      |           |       | 6     |   |
| 112               | 10.20             | 0.077 | DIZe      |           |       |       |   |
| • •               |                   |       | 0.06      |           |       | OK    | ] |
|                   |                   |       |           |           | C     | ancel |   |

Figure 1.17 Selecting size for a group of timing marks

## Beginner's Guide

This guide is an introduction to setting up a FoD-OMR form, with different OMR zones (Matrix and Random, single choice and summation), other objects together with how to arrange these objects on the form.

#### Page Setup

First step is to set up the page in **File** > **Page Setup**. Set Paper to A4 or Letter and Grid to 48 channels. If you have a 40 channel scanner be prepared to adjust position of channels down to fit.

| Page setup  | ×         |
|---|-----------|
| Paper:       A4         Grid:       48 channels         Orientation:         Orientation:         Portrait (timing marks on left)         Portrait (timing marks on right)         Landscape (timing marks on top)         Landscape (timing marks on bottom)         Double sided printing (duplex):         Simplex |           |
| Iombstones  | OK Cancel |

Save the form name it "Beginner's Guide" or another appropriate name.

In **Tools** > **Preferences** set the **Measurement units** to **300 dpi (1/300 of inch)**. This allows for both 48 and 40 channel scanners without decimals (channel spacing is 50/300 for 48 channel, or 60/300 for 40 channel, other items items adjust to fractions of 48 and 40 channel measurements.

| Options             |                         | ×      |
|---------------------|-------------------------|--------|
| Preferences Folders | Custom mask             |        |
| Measurement units:  | 300 dpi (1/300 of inch) |        |
|                     |                         |        |
|                     |                         |        |
|                     |                         |        |
|                     |                         |        |
|                     |                         |        |
|                     |                         |        |
|                     | ОК                      | Cancel |
|                     |                         |        |

## **Timing Lines**

To define the timing lines select Timing Lines in the Draw toolbar. In the dialog box, set **Number of timing marks** to **41**.

| Timing marks   | ×                |
|--|------------------|
| Number of timing marks:<br>41<br>•<br>Offset from edge of the page (A):<br>150.00 (300 dpi)<br>• | OK<br>Cancel     |
| 🗖 Save as defaults   |                  |
| Size of timing marks (B):<br>23.00 (300 dpi) 📑 🗖 Leave as it is                                  | A                |
| Space between timing marks (C):<br>60.00 (300 dpi)   | <b>↓ ↓ B ↓ C</b> |

The Timing Marks appear on the right side of the form in red. Right-click anywhere on the form and click **Apply changes**.

| Apply changes<br>Cancel |   |
|-------------------------|---|
| Delete<br>Insert group  |   |
| Dimensions<br>Sizes     | • |
| Spacing<br>Space evenly | ۲ |

You can now modify the spacing of the timing marks by right-clicking the timing marks and select **Properties**. In the dialog box you can change the space between the timing marks as well as their size.

| Ti | min               | g marks            |                            |          | ×            |
|----|-------------------|--------------------|----------------------------|----------|--------------|
| ſ  | <u>N</u> um<br>41 | ber of timing mark | <s:<br>Units: (300</s:<br> | dpi)     | ОК           |
|    | N                 | Space              | Size                       | <b>A</b> | Cancel       |
|    | 1                 | 300.00             | 23.00                      |          |              |
|    | 2                 | 60.00              | 23.00                      |          |              |
|    | 3                 | 60.00              | 23.00                      |          |              |
|    | 4                 | 60.00              | 23.00                      |          |              |
|    | 5                 | 60.00              | 23.00                      |          | Mode         |
|    | 6                 | 60.00              | 23.00                      |          | 🖲 Edit       |
|    | 7                 | 60.00              | 23.00                      |          | C Select     |
|    | 8                 | 60.00              | 23.00                      |          |              |
|    | 9                 | 60.00              | 23.00                      |          | Set sizes    |
|    | 10                | 60.00              | 23.00                      |          | <u>3/263</u> |
|    | 11                | 150.00             | 23.00                      | _        | Set spacing. |
|    | 12                | leo oo             | 22.00                      |          |              |

Change the spacing to create one group of 10, five groups of 5, one of 4 and the last 2 together. Set the spacing evenly between the groups.

#### Student

Matrix Zones for responses are define by a series of mouse clicks. You define start point (1), then spacing between choices (2), number of choices (3), spacing and orientation between elements (4), and finally number of elements (5).

To set up a student number of six digits:

- 1. Click the Matrix Zone is button. The mouse pointer changes to a cross-hair.
- 2. Select where to "click" to start the zone. You can see Row and Column in the Sta-

tus Bar (bottom of the window).

Channel:8 Row:1 left:1992.50 top:200.50 (300 dpi) No selection

- 3. Click the second choice of the first element to define the element's orientation (along columns or rows) and the spacing between choices.
- 4. Click the last choice of the first element to define the number of choices.
- 5. Click the first choice of the second element to define the spacing between elements.
- 6. Click the first choice of the last element to complete the zone.



- Open the properties of the zone, either by double clicking the zone, or by right clicking and selecting **Properties**.
- From the **Response shape** area, select the shape to the right of NULL and set **White** filled.

 There are standard text choices to choose from, Numbers (from 0).

| Zone Object   |   |
|---|---|
| N         Text         Frame           1         0         2         1           3         2         4         3           5         4         6         5           7         6         8         7           9         8         10         9 | e Plate Origin Format Font<br>Standard choices<br>Response shape: V White filled<br>NULL O C O X<br>O C O X<br>Text appears on: All repeats<br>Offset from mark<br>Horizontal: 0.00 (300 dpi) •<br>Vertical: 0.00 (300 dpi) • |
|   | OK Cancel   |

> In the **Matrix** tab, check the **Horizontal origin** is **40** and **Vertical origin** is **1**, change them if different.

| Zone Object                   |                      |
|-------------------------------|----------------------|
| Choice text Matrix Frame Plat | e Origin Format Font |
| Horizontal origin: 40         |                      |
| Vertical origin: 1            |                      |
|                               |                      |
| Choices                       | Repeats              |
| <u>C</u> ount: 10             | C <u>o</u> unt: 6    |
| Spacing: 1                    | Spacing: 1           |
| C <u>H</u> orizontal          | Horizontal           |
|                               | C Vertica <u>l</u>   |
|                               |                      |
|                               | OK Cancel            |

Jump to the **Plate** tab to change the color of the response text. FoD OMR regonizes only "three colors": **Black**, **Blind** (shown as Red) and **Other** (shown as Blue). More information on blind and other colors is available in the manual PAGE REF.

. Choose

• Set **Plate** to **Blind**.

| Zone Object  | ×      |
|--|--------|
| Choice text   Matrix   Frame Plate   Origin   Format | Font   |
| C Black<br>I Blind<br>C Other                        |        |
| ОК   | Cancel |

> On the **Frame** tab mark all three choices. This tab frames the zone with borders, internal lines and shading.

| Zone Object   | ×      |
|---|--------|
| Choice text   Matrix Frame   Plate   Origin   Format   For  | nt     |
| Draw Border Comers Stripes and dividers   |        |
| ✓ Border  | 1      |
| ✓ <u>D</u> ividing lines  |        |
| ▼         Stripes           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■           ■         ■ |        |
|   |        |
| ОК  | Cancel |

On the Border tab, untick Auto offsets and change the settings to those shown below. Width should be increased to the second thinnest option.

| Zone Object    |                                     |
|----------------|-------------------------------------|
| Choice text Ma | trix Frame Plate Origin Format Font |
| Draw Bord      | er Corners Stripes and dividers     |
| Auto off:      | sets                                |
| Top (A):       | 100.00 (300 dpi)                    |
| Left (B):      | 25.00 (300 dpi)                     |
| Bottom (C):    | 30.00 (300 dpi) 🔹 🗳 🗳               |
| Right (D):     | 25.00 (300 dpi)                     |
| Width:         | Title line                          |
|                |                                     |
|                | OK Cancel                           |

In the Title Line <u>Title line...</u> dialog box you create the line dividing the Title space from the choices. Set the **Placement** to **Top**, untick **Auto distance** and set to **25**.
 Width should be increased to the second thinnest option.

| Title Line | ?                 |
|------------|-------------------|
| Placement  | Auto distance     |
| C None     | Distance:         |
| C Left     | 25.00 (300 dpi) ÷ |
| Top        | Auto width        |
| C Right    | Width:            |
| C Bottom   | OK Cancel         |

• On the **Corners** tab, select **Top-left (A)** and **Top-right (B)**. Untick **Auto-size** and set the **Roundness** to **13**.

| Zone Object                               |                |
|---|----------------|
| Choice text   Matrix Frame   Plate   Orig | in Format Font |
| Draw Border Corners Stripes and d         | lividers       |
| ▼ Top-left ( <u>A</u> )                   |                |
| ☑ Top-right ( <u>B</u> )                  | 177 BY         |
| 🔲 Bottom-right ( <u>C</u> )               |                |
| E Bottom-left (D)                         | 33             |
| ☐ Auto-size                               |                |
| <u>R</u> oundness: 13.00 (300 dpi)        |                |
|   |                |
|   | OK Cancel      |

Finally set the stripes that divides the elements for visual clarity. These should be Vertical and a light shade (via the Slider - move to the left).

| Zone Object   |
|---|
| Choice text   Matrix Frame   Plate   Origin   Format   Font   |
| Draw Border Comers Stripes and dividers   |
| Orientation   Orientation   Horizontal   Vertical     Color of the stripes:     S     S     S     S |
| OK Cancel   |

Leave the settings on the **Origin** and **Format** tabs as is, and select the Font tab.

Select Arial font and change the **Size** to **6**. Click **OK**. The zone should now look as below.



Test

There are a number of ways to copy a Matrix zone:

Copy, Paste and change the values in the Matrix tab

Copy, Paste, Drag and Resize

Use Ctrl+Drag to make the copy, then Resize

Copy and use Paste At 🔼 to make the copy, then Resize

Make, then delete each new Test field until you have used all methods please.

Copy and Paste and change the values in the Matrix tab:

• **Copy** and **Paste** the Student zone. The zone is placed on top of the already existing zone.

Open the Properties of the zone and in the Matrix tab change the Horizontal origin to 34, and set Repeats, Count to 4.

| Zone Object                    |                    | × |   |   |   |   |   |   |   | Г  |     |    |     |          |          |
|--------------------------------|--------------------|---|---|---|---|---|---|---|---|----|-----|----|-----|----------|----------|
| Choice text Matrix Frame Plate | Origin Format Font |   | ŀ | ÷ | ÷ | ÷ |   | ÷ | ÷ | 0  | 0   | ഇ  | 3   | ഇ        | 03       |
|                                |                    |   | Ŀ | ÷ | • | • | ÷ | ÷ | ÷ | 83 | Ð   | Ð  | Ð   | <b>1</b> | <b>B</b> |
| Horizontal origin: 34          |                    |   | ŀ | ÷ | ÷ | ÷ |   | ÷ | ÷ | 23 | 23  | 23 | 23  | 23       | 23       |
| Vertical origin: 1             |                    |   | Ŀ | ÷ | ÷ | ÷ |   | ÷ | ÷ | 33 | 33  | 33 | 33  | 33       | 33       |
| ,                              |                    |   | ŀ | ÷ | ÷ | ÷ |   | ÷ | ÷ | Ð  | -43 | ₫  | 43  | Ð        | 43       |
|                                |                    |   | ŀ | ÷ | ÷ | ÷ |   | ÷ | ÷ | 53 | 53  | 53 | -53 | 53       | -53      |
| Choices                        | Repeats            |   | ŀ | ÷ | ÷ |   |   | ÷ |   | ø  | -63 | 68 | -83 | 68       | -83      |
| Count: 10                      | Count:             |   | ŀ | ÷ | ÷ |   |   | ÷ |   | B  | 523 | Ð  | 523 | 23       | 523      |
| Spacing: 1                     | Spacing: 1 5       |   | Ŀ | ÷ | ÷ | ÷ |   | ÷ |   | 8  | 33  | 8  | 33  | 83       | -83      |
|                                |                    |   | ŀ |   | • | • |   |   |   | 9  | 93  | 9  | 93  | 9        | 93       |
| C Horizontal                   | Horizontal         |   | Ŀ |   |   |   |   |   |   |    |     |    |     |          |          |
| Vertical                       | C Vertical         |   | Ŀ |   |   |   |   |   |   |    |     |    |     |          |          |
|                                |                    |   | Ŀ |   |   |   |   |   |   |    |     |    |     |          |          |
|                                | OK Cance           |   | ŀ |   |   |   |   |   |   |    |     |    |     |          |          |
|                                |                    |   |   |   |   |   |   |   |   |    |     |    |     |          |          |

- Leave the other settings as is.
- Click **OK**. Your two zones should now look as below.

| Г   |     |     |    | $\square$ |             |     |          |     |          |
|-----|-----|-----|----|-----------|-------------|-----|----------|-----|----------|
| 3   |     | .03 | 03 | 03        | <u>.</u> 03 | 03  | 83       | 03  | 03       |
| 3   | Ð   | Ð   | Ð  | Ð         | <b>B</b>    | Ð   | <b>3</b> | Ð   | <b>B</b> |
| 23  | 23  | 23  | 23 | 23        | 23          | 23  | 23       | 23  | 23       |
| 33  | 33  | 33  | 33 | 33        | 33          | 33  | 33       | 33  | 33       |
| 43  | 43  | 43  | 43 | 43        | -43         | -43 | -        | 43  | 4        |
| -53 | 53  | 53  | 53 | 53        | 53          | 53  | 53       | 53  | 3        |
| -83 | 83  | -83 | 8  | 33        | -83         | -83 | -        | -83 | •        |
| 573 | 523 | 523 | 53 | 523       | 523         | 523 | 523      | 523 | 53       |
| -83 | 33  | 33  | 83 | 33        | -33         | 33  | 83       | 33  | 83       |
| 3   | 93  | 93  | 8  | 33        | 33          | 33  | 83       | 33  | 33       |

Copy, Paste, Drag and Resize:

• **Copy** and **Paste** the Student field. The field is placed on top of the already existing field.



> Drag the zone to the left until only one repeat overlaps and let go of the mouse.

|  |   |   |                           |   | ĺ          |                      |                         |   |  |                  |
|--|---|---|---------------------------|---|------------|----------------------|-------------------------|---|--|------------------|
| 67   |   |   |                           |   | 12         | -01                  | 03                      | 03  | 03                                     | 03               |
|  |   |   |                           |   | 83         | <b>B</b>             | 13                      | <b>3</b>  | <b>1</b> 3                             | Ð                |
|  |   |   |                           |   | 23         | 23                   | 23                      | 23  | 23                                     | 23               |
| .+   | ₽.  |   |                           |   | 833        | 33                   | 33                      | 83  | 33                                     | 83               |
|  |   |   |                           |   |            | -43                  | 643                     |   | 643                                    | -<br>            |
|  |   |   |                           |   |            |                      |                         |   |  |                  |
|  |   |   |                           |   | na.        | n.                   | ER.                     | n.  | ER.                                    | n.               |
|  |   |   |                           |   | 5          | 5                    | 5                       |   | 5                                      |                  |
|  |   |   |                           |   | -00<br>-00 | 6                    | 0<br>0                  |   | с<br>С                                 | 0<br>0           |
| Ľ.   |   | Ľ.                                      | Ľ.                        |   | 90<br>50   |                      | 9<br>0                  |   |  | 9<br>0           |
|  | •   |   |                           |   | 89         | œ                    | 633                     | 89  | сал<br>С                               | <del>ш</del>     |
|  |   |   |                           |   |            |                      |                         |   |  |                  |
| _  |   |   |                           |   | _          |                      |                         |   |  |                  |
| $ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$   |   |   |                           |   |            |                      |                         |   |  |                  |
| 8  | er.   | œ                                       | D                         | 1930                                      | 0          | 0                    | 0                       | 0   | 03                                     | Ð                |
| 6<br>6   | <u>ත</u> [<br>ආ   | 9<br>9<br>9                             | 93<br>23                  | 93<br>53                                  | 0<br>0     | 03<br>63             | 03<br>63                | 00<br>53  | 93<br>53                               | 8<br>8           |
| 38)<br>53<br>53  | <u>ල</u><br>ස<br>හ  | ල<br>ප<br>ප                             | 0<br>5<br>5<br>2          | 09<br>EB<br>23                            |            | 00<br>ED<br>ED       | 10<br>11<br>12          | 00<br>ED<br>E2  | 09<br>EB<br>23                         | 8<br>8<br>8      |
| 99<br>53<br>53<br>53<br>53   | 22<br>23<br>23  | 00<br>ED<br>22<br>33                    | 9<br>13<br>13<br>13<br>13 | 9<br>5<br>7<br>9<br>9<br>9                |            | 00<br>53<br>53<br>53 | 09<br>EB<br>23<br>33    | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 09<br>EB<br>23<br>33                   | 8<br>8<br>8<br>8 |
| 9<br>53<br>53<br>53<br>53<br>53<br>53<br>53<br>53<br>54  | 20<br>53<br>53<br>53  | 0<br>5<br>2<br>3<br>3<br>4              | 8 8 8 8<br>8 8 8          | 00<br>63<br>63<br>63<br>63<br>63<br>64    |            |                      | 8 8 8<br>8 8            | 0 0 0<br>0 0 0<br>0 0<br>0 0  | 00<br>63<br>63<br>63<br>63<br>63<br>63 | 888              |
| 9<br>53<br>53<br>53<br>53<br>53  | 0<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50             | 000000000000000000000000000000000000000 |                           | 8 8 8 8                                   |            | 8 8 8 8              | 8 8 8 8                 | 8 8 8 9 8   | 8 8 8 8                                |                  |
| 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 8 8 8 8 9 9<br>9                        |                           | 8 8 8 8 9                                 |            | 8 8 8 8 8 8          | 8 8 8 8 8 8 8 8         | 8 8 8 8 8 8   | 8 8 8 8 8 9 8 8                        |                  |
| 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0      |   |   | 9999999999                | 13 19 19 19 19 19 19 19 19 19 19 19 19 19 |            |                      | E E E E E E E E         |   | E E E E E E E E                        |                  |
| 8<br>7<br>7<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8 |   |   |                           | 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8     |            |                      | 5 H 5 H 5 H 5 H 5 H 5 H |   | 8 E 8 8 8 8 E 8                        |                  |

> Select the middle black handle on the right side and resize the zone to 4 repeats.



Use Ctrl+Drag to make the copy, then Resize:

Hold Ctrl while dragging the zone to the left. This creates a copy.

|     |     |     |     |       | [   |     |     |            |            |          |
|-----|-----|-----|-----|-------|-----|-----|-----|------------|------------|----------|
| i.  |     |     |     |       | œ   | -03 | 33  | 03         | -03        | 03       |
|     | •   |     | •   |       | 83  | æ   | Ð   | <b>B</b>   | Ð          | Ð        |
|     | •   |     | •   |       | 23  | 23  | 23  | 23         | 23         | 23       |
| 1   | ŧ   |     |     | ÷     | 33  | 33  | 33  | 83         | 33         | 33       |
|     | •   |     | •   | •     | æ   | 43  | 43  | <b>4</b> 3 | 43         | 43       |
|     | •   | 1   | •   |       | 68  | 53  | 53  | 53         | 53         | 53       |
|     | •   | 1   | •   |       | 83  | -83 | -63 | -          | -83        | -83      |
|     | 1   | 1   |     | 1     | 83  | 23  | 523 | 53         | 523        | 23       |
|     | 1   | 1   | 1   | 1     | 83  | 33  | 33  | 83         | 33         | 8        |
| 1   |     |     | ••• | - • - | 33  | 93  | 93  | 83         | 93         | 93       |
|     |     |     |     |       |     |     |     |            |            |          |
| [   |     |     |     |       |     |     |     |            |            |          |
| 33  | -03 | .03 | 03  | 03    | 03  | ••• | 03  | •          | 03         | 03       |
| 3   | Ð   | Ð   | Ð   | Ð     | Ð   | Ð   | Ð   | Ð          | Ð          | Ð        |
| 23  | 23  | 23  | 23  | 23    | 23  | 23  | 23  | 23         | 23         | 23       |
| 33  | 33  | 33  | 33  | 33    | 33  | 33  | 33  | 33         | 33         | 3        |
| -43 | •   | 43  | •   | 43    | 43  | 43  | 43  | •          | <b>4</b> 3 | <b>a</b> |
| 53  | 33  | 53  | 53  | 53    | 53  | 53  | 53  | 3          | 53         | 3        |
| -83 | -83 | -63 | -83 | -63   | -83 | -83 | -63 | 8          | -63        | - 63     |

33

9

• Resize the zone.

Copy and use Paste At 🙆 to make the copy, then Resize:

8

9

9.

- Copy the zone.
- Select the Paste At button in the toolbar.

| C2 | <b>5</b> | ß               | C   |
|----|----------|-----------------|-----|
|    |          | 4. <sup>4</sup> | -   |
| Pa | ste at   | point           | ter |

• The mouse pointer changes to a hand.



> You can check the Row and Column in the Status bar to ensure the position is correct.

Channel:14 Row:1 left:1692.00 top:193.25 (300 dpi) left:1694.00 top200.00 width:1844.00 height:740.00 (300 dpi)

| $\square$   |    |     |          |     |          |     |     |          |     |          |
|-------------|----|-----|----------|-----|----------|-----|-----|----------|-----|----------|
| æ           | 0  | 0   | 00       | 03  | 03       | ••• | 03  | 03       | 03  | 03       |
| 83          | Ð  | Ð   | <b>B</b> | Ð   | <b>B</b> | Ð   | Ð   | <b>B</b> | Ð   | <b>B</b> |
| 23          | 23 | 23  | 23       | 23  | 23       | 23  | 23  | 23       | 23  | 23       |
| -33         | 33 | 33  | 33       | 33  | 33       | 33  | 33  | 33       | 33  | 33       |
| -43         | 43 | 43  | •        | 43  | 43       | 4   | 43  | •        | 43  | 43       |
| -53         | 53 | 53  | 3        | 53  | -53      | 53  | 53  | 3        | 53  | 53       |
| <b>-6</b> 3 | 8  | -83 | 8        | -83 | -83      | -83 | -83 | •        | -83 | 83       |
| 523         | 23 | 53  | 53       | 523 | 23       | 23  | 53  | 53       | 523 | 23       |
| -33         | 8  | 33  | 3        | 33  | 33       | 8   | 33  | 3        | 33  | 83       |
| 3           | 93 | 93  | 9        | 93  | 9        | 93  | 93  | 93       | 93  | 93       |

• Resize the zone.

| $\bigcap$ |     |            |     |   | $\bigcap$  |     |     |     |     |    |
|-----------|-----|------------|-----|---|------------|-----|-----|-----|-----|----|
| ø         | 03  | œ          | 60  | • | œ          | œ   | 60  | 00  | œ   | 00 |
| 63        | 83  | 83         | 83  | • | 83         | 83  | 83  | 83  | 83  | 83 |
| 23        | 23  | 23         | 23  | • | 23         | 23  | 23  | 23  | 23  | 23 |
| 33        | 33  | 33         | 33  | • | 33         | 33  | 33  | 33  | 33  | 33 |
| 43        | 43  | <b>4</b> 3 | 43  | • | <b>4</b> 3 | 43  | 43  | 43  | 43  | 43 |
| 53        | 53  | 53         | 53  | • | 53         | 53  | 53  | 53  | 53  | 53 |
| 63        | 63  | 83         | 68  | • | 83         | 68  | 68  | 68  | 68  | 63 |
| 523       | 673 | 523        | 523 | • | 523        | 523 | 523 | 673 | 523 | 23 |
| 83        | 83  | 83         | 83  | • | 83         | 83  | 83  | 83  | 83  | 83 |
| B         | 9   | 93         | 93  | • | 93         | 93  | 9   | 9   | 9   | 9  |

## **Question Answers**

To set up the first group of 5 (of the 125 Questions):

- Click the Matrix Zone button. The mouse pointer changes to a cross-hair. As with Student a series of clicks completes the zone.
- Position the zone in the first group of 5 timing marks.



> The zone uses the same frame as the last zone created and for this zone the properties will need to be adjusted.

> Open **Properties** of the zone (opens to the **Choice Text** tab) and use

| Standard choices to set Le                                      | etters (upper case   | e).        | x                 |
|---|--|------------|-------------------|
| Choice text Matrix<br>N Text<br>1 A<br>2 B<br>3 C<br>4 D<br>5 E | Frame Plate Origin Standard choices Response shape: NULL           |            | Font White filled |
| A   | Text appears on:<br>Offset from mark –<br>Horizontal:<br>Vertical: | All repeat | ts                |
|   |  | ок         | Cancel            |

On the Matrix tab check the settings match those below. The different order of mouse clicks used to create the zone inverts the Horizontal and Vertical settings for Choices and Repeats.

| lorizontal origin: 5 | ]            |
|----------------------|--------------|
| /ertical origin: 11  | ]            |
|                      | -            |
| Choices              | Repeats      |
| Count: 5             | Count: 5     |
| Spacing: 1           | Spacing: 1   |
| Horizontal           | C Horizontal |
| C Vertical           | Vertical     |

The settings on the Frame tab need to be changed to move the title line to the left rather than top. Extend the Left (B) border and shorten Top (A).

| Zone Object          |                                     | ×     |
|----------------------|-------------------------------------|-------|
| Choice text Ma       | trix Frame Plate Origin Format Font | 1     |
| Draw Bord            | Comers Stripes and dividers         |       |
| 🔲 Auto off:          | sets                                |       |
| Top ( <u>A)</u> :    | 30.00 (300 dpi) ÷                   |       |
| Left ( <u>B)</u> :   | 130.00 (300 dpi) - B2 2             |       |
| Bottom ( <u>C)</u> : | 30.00 (300 dpi) 🗧 🗳 🗳               |       |
| Right ( <u>D</u> ):  | 25.00 (300 dpi)                     |       |
| <u>W</u> idth:       | Ţ_itle line                         |       |
|                      |                                     |       |
|                      | ОКС                                 | ancel |

> In the **Title Line** dialog box, click **Left** and leave the other settings as is.

| Title Line  | ? ×   |
|---|---|
| Placement<br>None<br>Left<br>Top<br>Right<br>Bottom | Auto distance<br>Distance:<br>25.00 (300 dpi) |
|   | OK Cancel                                     |

• On **Corners** tick to set rounding on all corners.

| Zone Object                               | ×                  |
|---|--------------------|
| Choice text   Matrix Frame   Plate   Orig | gin Format Font    |
| Draw Border Comers Stripes and c          | dividers           |
| ▼ Top-left ( <u>A</u> )                   |                    |
| 🔽 Top-right ( <u>B)</u>                   | 12 - 53            |
| 🔽 Bottom-right (C)                        |                    |
| ✓ Bottom-left (D)                         | 33<br>44<br>*D55C* |
| Auto-size                                 |                    |
| <u>R</u> oundness: 13.00 (300 dpi)        |                    |
|   |                    |
|   | OK Cancel          |

• On **Stripes**, change to **Horizontal**.

| Zone Object  |
|--|
| Choice text Matrix Frame Plate Origin Format Font  |
| Draw Border Comers Stripes and dividers  |
| Orientation   • Horizontal   • Vertical     1111   2222   3333   • Horizontal   • Vertical     • Orientation     • Horizontal   • Vertical     • Orientation     • Orientation <t< td=""></t<> |
| OK Cancel  |

• Your zone should now look like below.

| · · | ABCDE     |
|-----|-----------|
|     | A B C D E |
| • • | A B C D E |
|     | A B C D E |
|     | ABCDE     |

Copy the zone to create the 25 groups:

- While holding Ctrl, drag the zone to the right until it is in Channel 14. Continue to copy the zone until 5 are spaced evenly across the row. Any method for moving zones (listed in Test section) is suitable.
- > You can continue to copy the zones individually, moving them to the next row of zones.
- Alternatively, select all five zones and copy and paste them as a group. Selecting the zones can be done by dragging the mouse over them (while holding left mouse button) or selecting each in turn while holding **Shift**.
|  | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~   |
|--|---|
| ×  | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~   |
| ×  | X   |
|  |   |
| ×  | ×   |
| 🕐 transmission and the second s  |   |
| X  |   |
|  |   |
| N  |   |
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> There should now be 5 x 5 question zones on the form.

Number the Question Answers (Individually)

There are several ways of adding the text **Q1-Q125** to the form. Two ways are explored in this guide. The first one we will explore involves creating **Text objects**.

Create a Text Object:

- To place the first Text object, select the Text **T** tool. The mouse pointer changes to a cross hair.
- Drag the mouse to create the Text Object. The **Text Object** dialog box opens.
- Type "Q1-Q5" in the **Definition** tab.

| kt Object       |                        |                     |
|-----------------|------------------------|---------------------|
|                 | late   Fosition   Font |                     |
| Q2<br>Q3        |                        |                     |
| Q4<br>Q5        |                        |                     |
| Link selection  | Link <u>a</u> ll       | 1                   |
| Linked records: |                        | _                   |
| Sample Text     | Record name            | Edit link           |
|                 |                        | <u>D</u> elete link |
|                 |                        |                     |
| 1               |                        |                     |
|                 | ОК                     | Cancel              |

• On the Format tab set the Horizontal Alignment to Right.

| Alignment<br>Horizontal: | At Right       | Line spac | ing<br>Single | • |
|--------------------------|----------------|-----------|---------------|---|
| Vertical:                | Top 🔹          | Exact:    |               | • |
| Tabs                     |                |           |               |   |
| Auto                     |                |           |               |   |
| C Equal                  | 0.00 (300 dpi) | <u>*</u>  |               |   |
| C List                   | List setup     |           |               |   |
| Word wrap                |                |           |               |   |

• On the **Plate** tab, set **Plate** to **Black**.



• On the **Font** tab set the Font size to **9**. Click **OK**.

| ext Object  |                                      |               |                                      |   |                                       |
|---|--------------------------------------|---------------|--------------------------------------|---|---------------------------------------|
| Definition For<br>Name:   | mat   Plate                          | Position      | Font<br>Style:                       | 1   | Size:                                 |
| Arial   |                                      |               | Regula                               | r   | 9                                     |
| 11 Arial<br>12 Arial Blac<br>12 Arial Nan<br>12 Arial Rou<br>12 Arial Unio<br>13 Batang | ck<br>row<br>inded MT Bol<br>code MS | d<br>t        | Regula<br>Italic<br>Bold<br>Bold Ita | ır<br>alic  | 9<br>10<br>11<br>12<br>14<br>16<br>18 |
| Underline:  |                                      | 1 1           |                                      |   |                                       |
| Orientation:<br>Color:  | A <b>⊲</b> ¥<br>■■■                  | ′ <b>&gt;</b> |                                      | — 0   |                                       |
| Orientation:<br>Color:  | A <u>&lt;</u> ¥<br>⊥                 |               |                                      | — 0<br>ок   | Cancel                                |
| Orientation:<br>Color:  | • Q1<br>Q2<br>Q3<br>• Q4<br>Q5       |               | 3 60                                 | — 0<br>ОК<br>(D) (E)<br>(D) (E)<br>(D) (E)<br>(D) (E) | Cancel                                |

The Text object is not aligned correctly. This is because Line Spacing is set to Single (default setting), but it can be changed on the Format tab. The text should be spaced to the same as the space between the Timing Marks.

. .

A B C D E

 Check the space set between the Timing Marks by accessing Properties by right-clicking the Timing Marks.

| 41 |        | Units: | (300 dpi) | <u> </u>   |
|----|--------|--------|-----------|------------|
| N  | Space  | Size   |           | Cancel     |
| 6  | 60.00  | 23.00  |           |            |
| 7  | 60.00  | 23.00  | _         |            |
| 8  | 60.00  | 23.00  |           |            |
| 9  | 60.00  | 23.00  |           |            |
| 10 | 60.00  | 23.00  |           | Mode       |
| 11 | 150.00 | 23.00  |           | 🗭 Edit     |
| 12 | 60.00  | 23.00  |           | C Select   |
| 13 | 60.00  | 23.00  |           | * Jeleot   |
| 14 | 60.00  | 23.00  |           | Catainas   |
| 15 | 60.00  | 23.00  |           | Set sizes  |
| 16 | 150.00 | 23.00  |           | Setenacing |
| 17 | 100.00 | 22.00  |           |            |

 Open the Format tab in the Text Object Properties. Set the Line spacing Type to Exact. Set Exact spacing to 60.00.

| Alignment<br>Horizontal: At Right | Line spacing<br>Type: Exact • |
|-----------------------------------|-------------------------------|
| Vertical:                         | Exact: 60.00 (300 dpi         |
| Tabs                              |                               |
| • Auto                            |                               |
| C Equal 0.00 (300 dpi)            |                               |
| C List List setup                 |                               |
| Word wrap                         |                               |

Click OK.



The spacing now matches the **Timing Marks**, and with this method the **Text object** can be copied across and down the form to create the 25 (5 by 5) text objects containing **Q1-Q125**. To retain even spacing, use **Nudge**. See below for a guide to this.

This method present a problem when spacing between the Timing Marks is changed.

- > Open **Properties** of the Timing Marks again.
- On the 13th Timing Mark, change **Space** to **100**.

| Timin       | g marks       |        |           | ×           |
|-------------|---------------|--------|-----------|-------------|
| <u>N</u> um | ber of timing | marks: |           | ОК          |
| 41          | -             | Units: | (300 dpi) |             |
| N           | Space         | Size   | •         | Cancel      |
| 7           | 60.00         | 23.00  |           |             |
| 8           | 60.00         | 23.00  |           |             |
| 9           | 60.00         | 23.00  |           |             |
| 10          | 60.00         | 23.00  |           |             |
| 11          | 150.00        | 23.00  |           | Mode        |
| 12          | 60.00         | 23.00  |           | 🕶 Edit      |
| 13          | 100.00        | 23.00  |           | C Select    |
| 14          | 60.00         | 23.00  |           | , Joidet    |
| 15          | 60.00         | 23.00  |           | Cataires    |
| 16          | 150.00        | 23.00  |           | Set sizes   |
| 17          | 60.00         | 23.00  |           | Setspecing  |
| 10          | leninn        | 22.00  |           | Set spacing |

Click OK.



- > The spacing of Timing Marks has changed, but the Text has not.
- Change the Timing Marks spacing back as before.

Using **Nudge** to arrange Text Objects

Nudge (using the keyboard arrows to move objects on the form) can be used effectively to arrange objects as needed. Nudge Distance can be accessed through the Tools toolbar or menu. For this exercise use **Difference between selected objects**.

Select two question zones one apart in both directions, and press (nudge). Select
 Difference between selected objects and click OK.

| Nudge ?  |   |
|--|---|
|  |   |
| Pre-defined values:                                  |   |
| 25 (300 dpi)<br>5 (200 dpi)                          | A First   |
| 1 (300 dpi)  | Relected RECE                                   |
| Difference between selected objects<br>Full OMR arid | <u>ascre</u> ( ascre                            |
| Half of OMR grid                                     |   |
| ⊢ Nudge values                                       |   |
|  |   |
| Horizontal: 450.00 (300 dpi)                         | ABCDE ABCDE                                     |
| Vertical: 390.00 (300 dpi) ÷                         | BBBBBB  |
|  | AR BE CE DE E · · · · · · · · · · · · · · · · · |
| OK Cancel  | 83003 · · · · 83003                             |
|  |   |

Now any selected object(s) can be moved by the "nudge" distances, using the arrow keys, in any direction.

### Number the Question Answers (using zones)

Using "**NULL**" or "no shape" zone objects to create **Q1-Q125** is reliable and quicker as it avoids aligning text objects and automatically adapts to response position changes. To do this we will create a zone with the response text **offset from the mark**. Response text can be offset left (negative) or right (positive) of the zone center.

The zone is a single line of 25 choices with no repeats ("short" zone) and is created, as with the other zones, with a series of mouse clicks. For more information of "short" zones see the manual.

Creating a 5 choice zone to start, then extending it, will make the process easier to understand.

Create a "short" zone:

- > To create a zone with 5 choices in one column three mouse clicks are needed.
- Select the Matrix 🕮 tool. Click the top A in the top left zone.

• Click the second A, and finally the fifth A as below.

| First click   | · | +  | æ | B | 3  | B | æ |
|---------------|---|----|---|---|----|---|---|
| Second dick — |   | -+ | æ | B | 63 | B | æ |
|               | × |    | æ | B | 63 | B | æ |
|               |   |    | æ | B | 63 | B | æ |
| Third click   | ł | +  | æ | B | 3  | B | æ |

▶ To "finish" the zone with **5 Choices** and no **Repeats**, right-click the mouse anywhere on the page.

| • |   | 8 | B | 3  | B | Ð |
|---|---|---|---|----|---|---|
|   |   | 8 | B | 63 | B | æ |
| • | • | 8 | B | 3  | B | æ |
|   |   | 8 | B | 63 | B | æ |
|   | • |   | B | 3  | B | æ |

- Open the **Properties of the Zone**.
- Set the **Response shape** to **NULL**, and type **Q1-Q5** in the **Choice text** box.
- Click OK.

| •  | + | <b>@1</b>  | ෂ හ හ ස     |
|----|---|------------|-------------|
|    |   | Q2         | 88 E 19 E   |
|    | • | <b>@</b> 3 | 88 CC DE ES |
|    |   | Q4         | 88 E 19 E   |
| 17 | • | <b>@</b> 3 | 88 E 19 E   |

The new zone is placed on top the other and has the same **Properties** as the previously created zone, so there are a few changes to make.

- Open **Properties** again.
- **Choice text** needs to move left, a negative **Horizontal offset**. Set to -**30.00**.

• Untick White filled.

| Ν                     | Text                       | Standard choices   |
|-----------------------|----------------------------|--|
| 1<br>2<br>3<br>4<br>5 | Q1<br>Q2<br>Q3<br>Q4<br>Q5 | Response shape:     White filled       Image: State of the st |
| Q1                    |                            |  |

- Leave **Matrix** as is.
- > On the **Frame** tab, untick **Border**, **Dividing lines**, **Stripes**. Settings for the underlying zone remain as is.

| Zone Object   | ×   |
|---|---|
| Choice text   Matrix Frame   Plate                                | Origin Format Font                              |
| Draw Border Comers Stripes a                                      | nd dividers                                     |
| ☐ <u>B</u> order<br>☐ <u>D</u> ividing lines<br>☐ <u>S</u> tripes | 1 1 1<br>2 2 2 2<br>3 3 3<br>4 4 4 4<br>5 5 5 5 |
|   | OK Cancel                                       |

• On the **Plate** tab, set the plate to **Black**.

| Zone Object                            | ×                  |
|--|--------------------|
| Choice text   Matrix   Frame Plate   ( | Drigin Format Font |
| • Black                                |                    |
| C Blind                                |                    |
| C Other                                |                    |
|  |                    |
|  |                    |
|  |                    |
|  |                    |
|  |                    |
|  | OK Cancel          |

• On the **Format** tab, set the **Horizontal Alignment** to **Right**.

| Alignment -         |                                      | Line spac      | ing    | n |
|---------------------|--------------------------------------|----------------|--------|---|
| <u>H</u> orizontal: | At Right -                           | <u>T</u> ype:  | Single | - |
| <u>V</u> ertical:   | <sup>™</sup> A <sup>k</sup> Center ► | <u>E</u> xact: |        | ÷ |
| Tabs                |                                      |                |        |   |
|                     |                                      |                |        |   |
| C Equal             | 0.00 (300 dpi)                       | *<br>*         |        |   |
| C List              | List setup                           | 1              |        |   |

• On the **Font** tab, change the **Size** to **9**.

| <u>N</u> ame:  | Style:                                   | <u>S</u> ize:                         |  |  |  |  |  |
|--|--|---------------------------------------|--|--|--|--|--|
| Arial  | Regular                                  | 9                                     |  |  |  |  |  |
| Image: The Arial Black       Image: The Arial Black         Image: The Arial Bla   | Regular<br>Italic<br>Bold<br>Bold Italic | 9<br>10<br>11<br>12<br>14<br>16<br>18 |  |  |  |  |  |
| Underline:  Dirientation:  Dirientat | 0  |                                       |  |  |  |  |  |

• Click **OK**. Your two zones should now look like below.

|      |     |   |    |   | - |
|------|-----|---|----|---|---|
| • Q1 | EA3 | B | 63 | Ð | E |
| Q2   | EA3 | B | 63 | B | æ |
| • Q3 | EA3 | B | 3  | B | Œ |
| Q4   | EA3 | B | 63 | B | Œ |
| • Q5 | EA3 | B | 3  | B | æ |

Rather than repeating this for each of the 25 zones that make up the 125 Questions, extending it over 25 rows saves time and effort.

• On the **Matrix** tab, set the number of **Choices** to **25**.

| Zone Object  | X   |
|--|---|
| Choice text Matrix Frame Plate<br>Horizontal origin: 5           | e   Origin   Format   Font  <br>]<br>]                          |
| Choices<br>Count: 25<br>Spacing: 1<br>C Horizontal<br>C Vertical | Repeats<br>Count: 1 :<br>Spacing: 1 :<br>Horizontal<br>Vertical |
|  | OK Cancel   |

• On the **Choice text** tab, there are now 25 choices. Extend the numbers as shown on the sample PDF.

| Choice text       Matrix       Frame       Plate       Origin       Format       Font         N       Text | Zone Object             | X   |
|--|-------------------------|---|
|  | Choice text Matrix Fram | Image: Plate Origin Format Font     Standard choices     Response shape: White filled     Image: Plate Image: Plate     Response shape: White filled     Image: Plate Image: Plate        Image: Plate Image: Plate |
| Vertical: 0.00 (300 dpi)   |                         | Vertical: 0.00 (300 dpi)  |

- Click OK.
- > **Copy** and **Paste** the zone to the other columns, using one of the methods tried above in the Test section.
- Renumber the zones as per the sample PDF.

• Your form should now look as below.

| ~ | ~ | Y  | ~  | ~  | ~  | ~    | Y  | Y A  | ~  | ~  | 1 | 1   | 1   | 1  | ^    | ~  | ~  | ~ | Y   | Y   | Y   | Y A        | 1    | ~   | ~    | N.  | ~   | ~  | ~  | 2   | 1    | ~    | ~   | ~ | 2 | ĥ  | î  | Ŷ    | ĩ  | ř    | 1  | Ŷ | î | Ŷ    | Ŷ | 1  | 5  |
|---|---|----|----|----|----|------|----|------|----|----|---|-----|-----|----|------|----|----|---|-----|-----|-----|------------|------|-----|------|-----|-----|----|----|-----|------|------|-----|---|---|----|----|------|----|------|----|---|---|------|---|----|----|
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   | L |    |    |      | ł  |      |    |   |   |      | 1 |    |    |
| • | • | •  | •  | •  | •  | •    | •  | *    | •  |    |   | •   | •   | •  | •    | •  | *  | * | *   |     |     | •          |      |     |      |     |     |    | 1  |     |      | •••  | •   |   | E | E  | E  | E    | 1  | E    | E  | E | E | E    | E | 1  |    |
| • | * | *  | *  | •  | •  | *    | •  | •    | •  |    |   | •   | •   | •  | *    | *  | *  | * | *   |     |     |            |      |     |      |     |     |    | 1  |     |      |      | •   | 1 | E | E  | E  | E    | 1. | E    | E  | E | E | E    | 1 |    |    |
| * | • | *  | *  | *  | *  | •    | +  | *    | *  | •  |   | •   | •   | •  | *    | *  | *  | * | *   |     |     | •          |      |     |      |     |     |    |    |     |      |      | •   | 1 | E | E  | E  | E    | 1. | E    | E  | E | E | E    |   | 1  |    |
| * | * | *  | *  | •  | *  | *    | *  | *    | •  |    |   | •   | •   | •  | *    | *  | *  | * | *   | 1   |     |            |      |     |      |     |     |    |    |     |      |      | 1   | • | F | F  | ٢  | Ľ    | 1  | P    | E  | E | Ľ | T.   |   |    | 5  |
| + | + | +  | +  | +  | +  | +    | +  | +    | +  |    |   | •   | •   | +  | +    | +  | +  | + | +   |     | •   | •          | •    | •   | •    |     |     |    |    | •   |      | •    | +   | • | F | E  | Ē  | E    | 1  | E    | F  | F | E | F    | E | •  |    |
| • | * | *  | *  | •  | 1  | *    |    | •    | •  |    |   | •   | •   | •  | •    | *  | *  | * | •   |     |     |            |      |     |      |     |     |    |    |     |      |      | •   | 1 | P | P  | P  | ٢    | 1  | P    | P  | P | F |      |   |    |    |
| • | * | *  | *  | *  | •  | *    | *  | •    | 1  |    | 2 | •   | •   | •  | *    | *  | *  | • | •   |     |     | 10         |      |     |      |     |     |    |    |     |      | 8    | •   | 1 | P | P  | E  | E    | 1. | E    | P  | P | P | F    | E | 1  | 2  |
| * | * | •  | *  | •  | *  | *    | +  | *    | +  | •  | 1 | •   | •   | •  | *    | •  | *  | + | *   |     | •   | •          |      |     |      |     |     |    |    |     |      | •••  | •   | • | P | E  | P  | E    | 1* | E    | F  | F | F | P    | F | 1  |    |
| * | * | *  | *  | *  | *  | *    | •  | •    | *  |    |   | •   | •   | •  | *    | *  | *  | * | *   |     |     | •          |      |     |      |     |     |    | 1  |     |      |      | •   | * | E | E  | E  | E    | 1. | E    | E  | 1 | E | F.   |   | •  |    |
| * | • | +  | *  | *  | *  | •    | +  | +    | +  | •  |   | •   | •   | •  | *    | *  | +  | * | +   |     |     | •          |      |     | • •  |     |     |    |    |     |      | •    | •   | 1 | E | P  | P  | P    | •  | E    | P  | P | P |      | P | +  | 1  |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |
| + | + | +  | 24 | -  |    | di   | ŵ  |      | 1+ |    | C | +0  | ek  | \$ |      | ÷  | ¢  |   | 1.  |     |     | 01         |      | a d | 1    | 1   |     | η, |    | 1   | 016  |      |     | - | ¢ |    | ٦. | •    | F  | 22   |    | đ |   | i di |   | a. |    |
|   | + | 1  | 22 | -  |    | di i | -  |      | ١. |    | F | ā   | 7   | ÷  |      | -  |    | đ | ١.  |     | ÷   | 01         | 2    | . 1 | 1    | 1   | 1 1 | Ι. |    |     | 217  |      |     | - | ¢ |    | ۰. |      |    | 22   |    |   |   |      |   |    |    |
|   |   | +  | 28 | -  |    | -    | -  |      | ١. |    | E | +0  |     | *  |      | -  |    |   | ١.  |     | ŀ.  | 01         |      |     |      |     |     | ١. |    | .F  | 014  |      |     | - | - |    | ١. |      | H  | 224  |    |   |   |      |   | ١. | 6  |
|   |   |    | 24 | -  |    | -    | -  |      | 1. |    | F | 0   | 9   |    |      | ¢  | -  |   | 1.  |     |     | 01         | 4 5  |     | 0 05 | 1   |     |    |    |     | 219  | 5    |     | - |   |    | 1. |      | F  | 224  |    |   |   |      |   |    |    |
|   |   | +  | 26 | *  |    |      |    |      | ١. |    | H | 0 1 |     |    |      | ¢  | -  |   |     |     | .F  | 01         |      |     | 0.05 | 1 1 |     |    |    |     | 0.24 | -    |     | - |   |    |    |      | F  | 224  |    |   | - |      | đ | ١. |    |
| 1 |   | -  |    |    | -  | -    | -  |      | 1. | 20 | 9 | -   | - 1 | -  | -    | -  | -  | - | 10  |     | 0   | -          |      |     |      |     |     |    | 11 | 100 | -    |      | 1.1 |   |   |    | 1  | 19.5 | C  | -    |    |   |   |      |   |    |    |
|   |   | _  |    | _  |    |      |    |      |    |    | ~ | _   | _   | _  | _    | _  | _  | _ |     |     | -   |            | _    |     |      |     |     |    |    | -   | _    | _    |     |   | _ |    |    |      | _  |      | _  |   |   |      |   |    |    |
| + | + | •  | 26 | -  |    | -    | -  | -    |    | •  | L | 03  | -   | 3  |      | -  | -  |   |     | 1   | Ŀ   | Q3         | 6 -  |     |      |     |     | •  |    | 1   | 244  | F    | -   | - | - | -  | 1. | +    | 1  | 246  | F  |   | - |      |   | 1. |    |
| ٠ | ٠ | 0  | 27 | ÷  |    | ¢,   | ¢  |      | ŀ  | •  | 1 | 23  | 2   | ŝ  | a    | ¢  | ¢  |   | •   | 1   | ·L  | Q3         | 7 2  | 0   | 6 6  | 1   | d   | •  |    | -   | 243  | 1    | đ   | - | - | đ  | •  | •    | 0  | 247  | F  |   | - | đ    | đ | •  | 5  |
| + | ٠ | •  | 26 | ÷  |    | -    | ¢  | đ    |    | •  | 1 | 03  | Đ   | ÷  | đ    | c. | \$ |   |     | -   | ·L  | Q3         | 6    | a d | 6    | 1   |     |    | -  | 1   | 241  | i i  |     | - | đ | đ  |    | •    |    | 246  | F  |   |   |      |   | •  | Č. |
| ٠ | ٠ | Q  | 29 | ÷  | æ  |      | æ  | đ    | ŀ  | •  |   | 23  | 4   | ÷. | æ    | ¢, | æ  | đ | ŀ   | e i | ۰Ľ  | 23         | 9 2  | 1   | 1    |     | 1   | •  |    | -   | 244  | i ÷  |     | 4 | 4 | đ  | ٠  | •    | 4  | 249  |    | đ | 1 | đ    | đ | •  |    |
| ٠ | + | •  | 30 | \$ | \$ | di   | \$ | 4    | J٠ | •  | U | 23  | £   | ÷  |      | ¢  | ¢  | đ | J٠  | 1   | ۰Ŀ  | Q4         | 8 2  | a d |      | 1   | 1   | J. |    | ۰Ŀ  | Q44  | 5    |     | - | ¢ | 4  | J٠ | •    | Ŀ  | 256  |    | đ | 1 | 1    | 1 | J٠ |    |
|   |   | 48 | 1  | 1  |    |      |    | - 22 |    |    |   | ζ.  | 16  |    |      |    |    |   |     |     | 2   |            | 1.1  |     |      |     |     | Re |    | 86  |      | 10   |     |   |   | 10 | 8  |      | 97 |      | 14 |   |   |      |   | 2  |    |
|   |   | -  | -  | -  |    | -    | -  |      | Ÿ. | 5  | C |     | -   | -  |      | -  | *  | - | ٢.  |     | C   | ~          | , La |     |      |     |     | a. |    | C   | -    | - 1- |     | - | - |    | ١. |      | C  |      | Te |   |   |      |   | ä. |    |
| 0 |   | -  | 24 | -  | -  | -    | -  | -    | Ľ  |    | H |     | 1   |    | -    | -  | -  | - | E   |     | H   |            | 1    |     |      |     |     | ł. |    | E   |      | E    | -   | - | - | -  | Ľ  | 1    | Е  | -    | E  |   | - |      | - | H  | ŝ  |
| 0 |   | -  |    | -  | -  | -    | -  | -    | Ľ  |    | H |     | -   | -  | -    | -  | -  | - | Ľ   |     | H   |            | E    |     |      |     |     |    |    | E   |      | E    | -   | - | - | -  | Ľ  |      | E  |      | E  |   | - |      |   | 1  |    |
| 0 | 1 |    | 22 | -  | -  | -    | -  | -    | Ľ  |    | H |     | 1   | -  | -    | -  | -  | - | Ľ   |     | Η   |            | Ľ    |     |      |     |     |    |    | E   | -    | E    | -   | - |   | -  | 1  | 1    | E  |      | E  | - |   |      | - | H. |    |
| • | 1 |    | 24 | -  | -  | -    | -  | -    | Ľ  |    | P |     | 1   |    | -    | -  | -  | - | Ľ   |     | 1   | -          | E    |     |      |     |     | Η. | 2  | H   |      | E    | -   | - | - | -  | 1  | 1    | E  | 2/14 | E  |   |   | -    |   | 1  |    |
| • | 1 |    | 20 | -  |    | -    | -  | -    | ), |    | U | 26  | *1  | -  |      | -  | -  | - | Į., |     | 'U  | -          | ۰r   |     |      |     |     | 9. |    | ų,  | an.  | r    | -   | - | - | -  | r  | 1    | C  | 2/1  | 1  |   |   |      |   | 9. | 2  |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |
| ٠ | + | •  | 76 | ÷  | æ  | di   | ¢  | đ    | ŀ  | •  | ſ | 28  |     | ÷  | đ,   | ¢  | ¢  | đ | 1.  |     | ·C  | QS         | 6 4  | a d | 1    | 1   | đ   | ŋ, |    | •   | 09   |      | đ   | - | ¢ | 4  | ŀ. | •    | R  | 296  | F  | đ | 1 | đ    | đ | Đ. | 1  |
| + | + | 0  | 77 | ÷  | æ  | c.   | ŵ  | đ    | 1+ | •  |   | 28  | 2   | ÷  | đ.   | ¢. | ¢  | đ | •   |     | ·   | 28         | 7    | 1   | 1    | t d | đ   |    |    |     | 292  | 2    | đ   | - | ¢ | đ  | •  |      | 0  | 297  |    | đ |   | đ    | đ | •  |    |
|   | + | •  | 78 | -  |    | œ.   | æ  | đ    | ١. |    |   | 28  | 3   | ÷  |      | •  | æ  | đ | 1.  |     |     | Q8         |      | . 1 |      | 1   | 1   | Π. |    |     | 99   |      |     | - | ¢ | đ  | ١. |      | 4  | 294  |    |   | - |      | đ | ١. |    |
|   |   | Q  | 79 | ÷  | đ  | di   | -  |      | ١. |    |   | 28  | 4   | ÷  | æ    | di | di |   |     | ۰,  |     | 28         | 9 4  | 1   | 6 25 | đ   | 1   | Ι. |    |     | 294  | 1    |     | - | đ | đ  | ١. |      | 0  | 295  |    | đ |   |      | đ | •  | i, |
| • |   | •  | 80 | -  |    | -    | æ  |      | t٠ |    |   | 89  | 5   | \$ | di i | ÷  | \$ | đ | •   | e i | ۰Ŀ  | <u>0</u> 9 | 6 3  | a d | 1    | a d | đ   | ١. |    | -   | 094  |      |     | - |   | đ  | ÷  | •    | 0  | 106  |    |   | - | đ    | đ | ÷  |    |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      | -  |    |   | 1   |     | ~   |            |      |     |      | _   |     |    |    | 1   |      |      |     |   |   |    |    |      | 1  |      |    |   |   |      |   |    |    |
|   |   | _  |    |    |    |      |    | -    |    |    | c |     |     |    |      |    |    | - |     |     | 0   |            |      |     |      |     |     | 2  |    | C   |      | -    |     | - |   |    |    |      | c  |      | P  |   |   |      |   | 5  |    |
| • | • | 21 | 04 | -  |    | -    |    | 1    | 1. | •  | P | 10  | e   | -  |      | -  |    |   | 1.  |     | 19  | 11         | 1    | . 1 |      |     |     |    |    | 12  | 116  | F    | -   | - | - | -  | +  | +    | 2  | 124  | F  |   | - |      |   | 1. |    |
| ٠ | • | 21 | 02 |    |    | -    | -  |      | 1. | •  | 2 | 10  | 7   | 2  |      |    | 1  | - | +   | 1   | -   | 11         | 2 2  | 0 0 | 0 25 |     |     | •  | 1  | 2   | 117  | P    | đ   | - | - | 4  | +  | •    | 2  | 122  | F  |   | - |      | đ | +  | 9  |
| + | + | 21 | OB | -  |    | -    | ¢  |      | 1. | •  | 2 | 10  | ŧ   | 2  |      | 6  | 1  |   | 1.  | 1   | - 9 | 11         | в    | 8 0 | 6 6  |     |     | •  | -  | 2   | 11   | Ê    |     | - | - | 4  | +  | +    | 2  | 123  | F  |   |   |      | đ | +  |    |
| ٠ | • | 21 | 04 | ÷  | 4  |      | ¢  |      | ŀ  | •  | 2 | 10  | 9   | ŝ  |      | ¢, | \$ |   |     | ,   | -   | 11         | 4 2  | 1   | 0.05 |     |     | •  | 2  | 9   | 119  | 1    |     | - | 1 | 1  |    | •    | 2  | 124  | F  |   | - | 1    | đ | •  | ł  |
| + | + | 21 | 05 |    | \$ | đ,   | ¢  | 4    | ļ٠ | •  | 6 | 11  | e   | \$ | \$   | ¢  | ¢  | đ | •   | 1   | ۰le | 11         | 5    | 6.0 |      | 1   |     | ١. | -  | 6   | 12   | P    |     | - | ¢ | 4  | J٠ | •    | 6  | 124  | P  | đ |   |      |   | J٠ | 1  |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |
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|   |   |    |    | +  |    |      |    |      |    |    |   |     |     |    |      |    | +  |   | 4   |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      | 4  |      |    |   |   |      | 2 |    | 5  |
| - |   |    | -  | -  | 1  | -    |    |      | 1  |    | 2 |     | 1   | -  | 1    | 1  | 1  | 1 |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    | 5  |
| - | - | 1  |    | -  | -  | -    | 1  | -    |    |    |   |     | 1   | 1  | 1    |    | 1  | 1 | 1   |     |     |            |      |     |      |     |     |    |    |     |      |      |     | 1 |   |    |    |      |    |      |    |   |   |      |   |    |    |
|   |   | 1  |    |    |    |      | 1  |      |    |    |   |     |     | 1  |      |    | 1  |   |     |     |     |            |      |     |      | 100 |     |    |    |     |      |      |     |   |   |    |    |      | 1  |      |    |   |   |      |   |    |    |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |
|   | + | +  | +  | +  | +  | +    | +  | +    | +  |    |   | •   | +   | +  | +    | +  | +  | + | +   |     |     | •          |      |     |      |     |     |    |    |     |      | • •  | +   | + |   |    |    |      | +  |      |    |   |   |      |   | +  |    |
|   | + |    |    | +  |    | +    |    |      |    |    |   | •   | •   | •  | +    |    | +  |   |     |     |     |            |      | • • |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |
|   |   |    |    |    |    |      |    |      |    |    |   |     |     |    |      |    |    |   |     |     |     |            |      |     |      |     |     |    |    |     |      |      |     |   |   |    |    |      |    |      |    |   |   |      |   |    |    |

# Beginner's Guide Data

You can insert data from files into zone, text and barcode objects on your form, and dynamically merge the data when the form is printed. For this form we'll use a data file to pre-fill the Student Name, Student Number and Test Number.

Save this LINK to the folder where the form is saved.

Date

The Date field is made up of 4 OMR zones. Mth is a Random Zone, the other three Matrix. As the Random zone can't be assigned a frame, we will use a combination of frames and graphic objects to create this group.



- Create a "short" zone of 9 choices starting in **Channel 16**, **Row 1**.
- Open **Properties** and name the choices **10** to **18**.
- Check that the settings are as below.

| Choice text Matrix  | Frame   Plate   Origin   Format   Font  |
|---|---|
| N         Text           1         10           2         11           3         12           4         13           5         14           6         15           7         16           8         17           9         18 | Standard choices   Response shape:   White filled   Image: Standard choices   C > Image: Standard choices   Image: Standard choices |
|   | OK Cancel   |

• On the **Frame** tab untick all three choices.

Click OK.

| • | • | • | • | 8103 |
|---|---|---|---|------|
| · | • | • | • | 813  |
| • | • | • | • | 12   |
| • | • | • | • | 13   |
| • | • | • | • | 143  |
| · | • | • | • | 815  |
| • | • | • | • | 16   |
| • | • | • | • | 8173 |
| • | • | • | • | 813  |

Select the Random zone tool
 from the toolbar. This zone contains 12 choices in two rows, each created with individual clicks. Create two rows of 6, in the order below.

| • | • | B          | 73         | 8103 |
|---|---|------------|------------|------|
| · | · | 23         | 83         | 813  |
| · | · | 3          | 9          | 12   |
| • | ٠ | <u>4</u> 3 | <u>810</u> | 13   |
| · | · | 5          | <u>17</u>  | 14   |
| • | · | 6          | 12         | 815  |
| • | · | •          | •          | 16   |
| · | • | •          | •          | 173  |
| • | • | •          | •          | 813  |

Name the choices in short month format (Jan, Feb ... Nov, Dec).

• Set the **Response shape** to the second right from NULL.

|                         |                  | _                       |
|-------------------------|------------------|-------------------------|
| N Text                  | Standard choices | •                       |
| 1 Jan<br>2 Feb<br>3 Mar | Response shape:  | Vhite filled            |
| 4 Apr                   | NULL 🖂 🖂 🤇       | ) $\Box \Box \boxtimes$ |
| 5 May                   |                  |                         |
| 7 Jul                   |                  |                         |
| 8 Aug                   | E                |                         |
| 9 Sep                   | Text appears on: | Y                       |
|                         | Offset from mark |                         |
| Jan                     | Horizontal:      | 0.00 (300 dpi)          |
|                         | Vertical:        | 0.00 (300 dpi) 🔹        |

- On the **Format** tab, set **Horizontal alignment** to **Center**.
- Click **OK**.

▶

- Jan Jul 10
  Feb Aug 11
  Mai Sep 12
  Apr Oct 13
  Apr Oct 13
  May Noy 14
  Jun Deg 15
  Jun Deg 15
  1 10
  10
  110
- Create a "short" zone with 9 choices in **Channel 19**.

Open Properties and select Numbers (from 1) in

Standard choices...

> Change the **Response shape** back to the shape to the right of NULL.

On the Frame tab, select Border, but untick Dividing lines and Stripes if selected. The Border of this zone will be used to cover the other three zones so the Offsets need to be changed. Change the settings as below.

| ne Object<br>Choice text   Ma  | trix Frame Plate Ori   | gin   Format   Font |
|--|--|---------------------|
| Draw Bord  | er Corners Stripes and   | dividers            |
| Top ( <u>A</u> ):<br>Left ( <u>B</u> ):<br>Bottom ( <u>C</u> ):<br>Right ( <u>D</u> ): | 100.00 (300 dpi) +<br>75.00 (300 dpi) +<br>30.00 (300 dpi) +<br>175.00 (300 dpi) + |                     |
| <u>W</u> idth:   |  | <u>itle line</u>    |
|  |  | OK Cancel           |

- In **Title line** set to **Top**.
- Click **OK**.



- > Create a "short" zone of 3 in the empty Channel.
- Open **Properties** and name the choices **10**, **20**, **30**.

Click OK.



- Since the zone containing the Frame for the group is a single column, it's not possible to use the **Dividing lines** in the **Frame** tab. Two **Lines** (Graphic Objects) can be used to create the Dividing lines instead.
- Select the Vertical line tool in the toolbar. The mouse pointer changes to a cross hair. Draw a line between "Month" and "Day".

| E10 | 83         | Jan     | (Jul) | 810  |
|-----|------------|---------|-------|------|
| 20  | 23         | Eeb     | Aud   | 813  |
| 80  | 33         | Mar     | Sep   | 812  |
|     | <b>4</b> 3 | Apr     | Oct   | 813  |
|     | 53         | May     | Nov   | 814) |
|     | 63         | Jun     | Ded   | 815  |
|     | æ          | <br> +- |       | 818  |
|     | 83         |         |       | 812  |
|     | 93         |         |       | 818  |

- Extend the line to the bottom and top border. You can change the Nudge distance to 1 (300 dpi) for fine tuning the placement.
- Open **Properties** and change **Plate** to **Blind**.

- Copy and Paste the line, or draw another line, and place it between "Month" and "Year".
- Add three text objects ("Day", "Mth", "Yr") in the title space above the group. If they appear in Red, change **Plate** to **Black** in **Properties**.



### Constant text objects

Add the constant text objects above the Date, Test and Student zones. The Alignment tools are useful in placing these objects. More information on Alignment Tools can be found in the manual.

Aligning objects:

- Select T. While holding the left mouse button drag across the screen to place your text object. This opens the Text object dialog box (Properties). In Definition type "Student".
- On the **Format** tab set the **Horizontal Alignment** to **Center**.
- Set **Plate** to **Black**.
- On the **Font** tab, set **Font size** to **12**. Click **OK**.
- ▶ Toogle the Alignment toolbar, if not already open, by clicking . This opens the



This can be docked in the toolbar

menu, or left floating.

Select the "Student" text object and click 
 This alignment tool uses two clicks to center an object between the two selected points.

> Click the horizontal edges of the Student zone.



> The text is now centered over the zone.



• Do the same for **Test** and **Date** zone.

Add the text field "Student: / Student no.: / Test:"

> Use the text tool to create the object. In **Definition** type the three line.

| Student:<br>Student No.:<br>Fest: |             |             |
|-----------------------------------|-------------|-------------|
| Link selection                    | Link all    |             |
| inked records:<br>Sample Text     | Record name | Edit link   |
|                                   |             | Delete link |

- Set Horizontal alignment to right in Format tab. Set the Line spacing to Exact: 60 (300 dpi).
- > Set Plate to Black.
- Set Font size to 12.
- Click **OK**.
- With the Text object selected click I←, the mouse pointer changes to a hand. Select the left edge of the first Q1-Q125 zone. The object aligns with the other zones in the left column..
- Click **T** and align the object to the **Student** zone.

To create the sample text (to be substituted from the data file):

- Copy and paste the text object. The copied object is placed on top of the first object.
- Open Properties and change the Horizontal alignment (on the Format tab) to Left. This moves the text object. If it is too close to the constant text object, use Nudge to move slightly to the right.



• Open **Properties** again. Change the text to a sample of the text that will appear on the form.



### **Preparing Data Files**

FoD-OMR can use data files in three distinct 'formats':

- Fixed data files have the same data field always at the same location on each line in the data file.
- > Delimited data files have their fields separated by a character known as a delimiter.
- Delimited named data files are like the Delimited data files in that the fields are separated by a delimiter. They also have a header line which allows more flexibility in forms design.

This Beginner's Guide uses a Fixed data file. More information on Merging Data Files can be found in the manual.

Open the text file provided. The fields in the file all have the same starting point, but not always the same length. Student and Test (and Date, not used in this form) are always the same length, but Name varies in length.

| File Edit | Format View Help |                    |
|-----------|------------------|--------------------|
| Deepak    | Pratel           | 986734 1255 311210 |
| Ashok     | Kumar            | 894444 9879 090110 |
| Narai     | Kapardia         | 111230 7788 220610 |

You can set up the fields prior to linking, or as needed by creating fields through linking objects (text, zone, barcode objects).

To set up the fields before linking:

- > You need the first 4 records of this file, Name, Surname, StudentNo and Test.
- > Count the characters (and space) for each field to determine the length of each.

> In the **Tools** menu, select **External data...**.



> This opens Field definitions dialog box. Click New.

| ield Definitions |        |         | ×      |
|------------------|--------|---------|--------|
| Records          |        |         |        |
| Maintenance r    | node   |         |        |
| New Edit.        | Delete | Print S | hift   |
| Name             | Start  | Length  | Ŧ      |
|                  |        |         | Ť      |
|                  |        |         |        |
|                  |        |         | +      |
| •                | III    | •       | *      |
|                  | 1      | ок      | Cancel |
|                  |        |         | 1000   |

 FoD-OMR asks you what type of input data used. Select Data fields are of fixed size.



> The **Field** dialog box opens. Type in your first field, "FirstName", and set the length of the first record in the text file. Click **OK**.

| eld      |           | ? >    |
|----------|-----------|--------|
| Name:    | FirstName | ОК     |
| Start:   | 1 +       | Cancel |
| l enath: | 16        |        |

 Click New again and add "Surname". The Start point changes automatically to accommodate the fields created prior.

| Name:   | Surname | ОК     |
|---------|---------|--------|
| Start:  | 17 ÷    | Cancel |
| Length: | 21 ÷    |        |

Add "StudentNo" and "Test".

| Maintenance mod        | e<br>  Delete | Print | Shift |
|------------------------|---------------|-------|-------|
| Nomo                   | Order         | Mayla |       |
| inanie<br>©≦ FiretName | 1             | 16    | 1     |
| Sumame                 | 2             | 21    | 1     |
| Student No             | 3             | 7     |       |
| 🗯 Test                 | 4             | 5     |       |
|                        |               |       | +     |
|                        |               |       | 1     |

- Your fields are now available to link. The symbol to the left of the name is a green "broken link". This signifies that the field hasn't yet been linked.
- Below are the instructions on creating fields as you need them and it's also the method of linking previously created fields to text. Delete the fields created, as we'll recreate them later.
- Open the sample text **Properties**. Mark the "FirstName" only, and click **Link** selection...

| d Object                                    |                    | <u> </u>    |
|---|--------------------|-------------|
| Definition Format P                         | late Position Font |             |
| <mark>Andrew</mark> Smith<br>987654<br>7891 |                    |             |
| Link selection                              | Link all           |             |
| Sample Text                                 | Record name        | Edit link   |
|   |                    | Delete link |
|   |                    |             |

> This opens the **Link to field** dialog box. If you have created the fields previously they will appear in the drop down menu.

| Text Object        |  | ×            |
|--------------------|--|--------------|
| Link to field      | l  | ? ×          |
| Field:<br>Mask as: | <ul> <li>▼</li> <li>FirstName</li> <li>Surname</li> <li>StudentNo</li> <li>Test</li> <li>Page</li> <li>Next Page</li> <li>Previous Page</li> <li>Date</li> </ul> | OK<br>Cancel |
|                    |  | OK Cancel    |

- Since the fields were deleted, the list only contains the predefined fields (such as Page, Date etc).
- To add a field, click \_\_\_\_\_ next to **Field**, this opens the Field dialog box. Type **FirstName** and change the **Max Length** to **16**.

| eld                                  |            | ? <mark>×</mark>   |
|--------------------------------------|------------|--------------------|
| Name:                                | FirstName  | ОК                 |
|                                      |            | Cancel             |
| Max Length:<br>NOTE:<br>'Max Length' | 16 🛨       | nience only and is |
| ignored by ap                        | plication. |                    |

• Click **OK**. Click **OK** in the **Link to field** dialog box.

| Andrew Smith<br>987654 |             |             |
|------------------------|-------------|-------------|
| 7891                   |             |             |
| Link selection         | Link all    |             |
| inked records:         |             |             |
| Sample Text            | Record name | Edit link   |
| Andrew                 | FirstName   | Delete link |
|                        |             |             |

- > The linked text is highlighted and the field is available in the **Linked records** list, where you can edit the link (or delete it).
- Link the remaining fields.

| Andrew <u>Smith</u><br>987654     |  |             |
|-----------------------------------|--|-------------|
| Link selection                    | Link, all                                | 1           |
| inked records:<br>Sample Text     | Record name                              | Edit link   |
| Andrew<br>Smith<br>987654<br>7891 | FirstName<br>Sumame<br>StudentNo<br>Test | Delete link |

Click OK.

> Open **External data...** from the **Tools** menu. The "broken link" has now changed to an "unbroken link" symbol.

| Maintenance mode         | 9      |         |       |
|--------------------------|--------|---------|-------|
| <u>N</u> ew <u>E</u> dit | Delete | Print   | Shift |
| Name                     | Order  | Max Ler | -     |
| E FirstName              | 1      | 16      |       |
| Sumame                   | 2      | 21      | T     |
| Student No               | 3      | 7       |       |
| 📾 Test                   | 4      | 5       |       |
|                          |        |         | +     |
|                          |        | _       | 1     |

▶ If you have added the **Fields** in a different order to how they appear in the data file, you can change the **Order** and **Max Length** in **Field Definitions**.

### Student

You can now use the Fields created to pre-fill some of the OMR zones.

- Open **Properties** of the Student zone.
- Linking a zone to a field is done in the **Origin** tab of the **Zone Properties**. Default setting is **Constant**. To create a new field, click the button and proceed as before when

| rieid: Constant 💽 🛄                            |  |
|--|--|
| Encode method: C Constant                      |  |
| Encode value: E Sumame E Sumame E Sumame       |  |
| - Encoding marks - 🖹 Test 🗟<br>Vage            |  |
| Pre-defined size 🐼 Next Page 👻 Previous Page 👻 |  |
| <u>W</u> idth: 30.00 (300 dpi)                 |  |
| Height: 15 00 (300 dpi)                        |  |

creating a field. As we have already created **StudentNo**, select it from the drop down menu.

- On **Encoding method** select **0-9**.
- In Encoding value, you can enter a sample value, to see on the form (prior to printing) how the printed form will appear. Enter 6 numbers to "pre-slugg" the zone.
- Select the **Standard** size of **Encoding marks**.

| Theires text   Metric  | ] Ecomo ] Disto  |          | mat   East | 1      |
|--|--|----------|------------|--------|
|  |  |          |            | 1      |
| Field:   | Student No   | -        | ·          |        |
| Encode method:   | 0-9  | -        | -          |        |
| Encode value:  | 987654   |          | -          |        |
| Encoding marks<br>Pre-defined siz<br>Width: 30.0<br>Height: 15.0 | es: Standard<br>10 (300 dpi) <u>÷</u><br>10 (300 dpi) <u>÷</u> | <b>_</b> |            |        |
| <u></u>  |  | ОК       |            | Cancel |

Click OK.





 If the Student number should appear in the Title line of the zone, copy the "Student" text object and place it in the title line. Change the definition to a sample Student Number. Link the text to **StudentNo**.

| 87654          |             |             |
|----------------|-------------|-------------|
|                |             |             |
| Link selection | Link all    | 1           |
| nked recorde:  |             | ]           |
| Sample Text    | Record name | Edit link   |
| 987654         | StudentNo   | Delete link |
|                |             |             |

# Student



- > It's not possible to change the spacing of the text substituted from a data file, so the Student Number is centered in the Title line.
- Link the **Test** zone to the Test record.

## Barcode

To add a barcode:

Click IIII, and drag the mouse pointer where you want to place the barcode. The Barcode dialog box opens.

| rcode Object<br>Definition   Format   P<br>Symbology:  Code 2 | late Position Font | ]           |
|---|--------------------|-------------|
| Text:<br>7891   | - 57               | 1           |
| Link selection  | Link all           | ]           |
| Linked fields:  |                    | _           |
| Sample Text   | Record name        | Edit link   |
| 7891  | Test               | Delete link |
|   |                    |             |
|   | ОК                 | Cancel      |

- Set **Symbology** to **Code 2 of 5 int**.
- Click Link all... and link to Test.
- Click **OK**.
- > Adjust the size of the barcode if needed by dragging the black handles that appear around the barcode when selected.



Adjust the position of the barcode if needed.



### **ID Mark**

The **ID Mark** is used by the scanner to determine how to read the form.

- Create a single Matrix Zone to the immediate left of the second last Timing Mark.
- ▶ In **Text** type "ID Mark".
- > Set the response shape to the shape to the shape immediate right of NULL.
- > Set a **negative Horizontal offset** (-100.00) to place the text to the left of the zone.
- Untick all choices on the **Frame** tab.
- Set **Plate** to **Blind**.
- On Origin tab, set Field to Constant, the Encoding Method to Y/N, and set Encoding value to Y.

Choose Custom in Pre-defined sizes. Set Width to 45, and Height to 23 (the same as the Timing Marks).

| <u>Field</u> :                      | C Constant   |
|-------------------------------------|--------------|
| Encode method:                      | Y/N 🔹        |
| Encode <u>v</u> alue:               | Y            |
| - Encoding marks<br>Pre-defined siz | es: Custom 💌 |
| <u>W</u> idth: 45.                  | 00 (300 dpi) |
| Height: 23.                         | 00 (300 dpi) |

- Set Font size to 9.
- Click OK.

## Binary Codes Decimal 1,2,4,8...

Binary numbers are used to show data on OMR forms.

To create the 20 Choice "short" zone directly underneath the **Question** zones, you need three mouse clicks.

- Select Before the toolbar.
- Check the Status Bar to make the first mouse click in **Channel 45**, **Row 36**.
- Place the second click to the right (Channel 46), and the final, making the count 20, in Channel 26, Row 36.



- > Open Properties and tick White filled if not already selected.
- > Set **Offset from mark** (both Horizontal and Vertical) to 0.00.

| N Text           | Standard choi    | ices                           |
|------------------|------------------|--------------------------------|
| 1 2 2            | ■ Response shape | e: 🔽 White filled              |
| 4<br>5<br>6<br>7 |                  | ) () () () [⊠<br>) () () () [⊠ |
| 8<br>9<br>•      | Text appears o   | n: All repeats                 |
|                  | Horizontal:      | 00.00 (300 dpi) 🔹              |
|                  | Vertical:        | 0.00 (300 dpi)                 |

> Check that the **Response shape** is set to the shape to the right of NULL.

Click **OK**.

# \_

- Open **Properties**, and select the **Origin** tab.
- > Select **StudentNo** from the drop down menu.

Select **BCD 1,2,4,8...** in **Encoding method**, and type in the sample value in **Encoding value**.

| Choice text   Matrix   | Frame Plate Orig                                 | gin Format For | t |
|--|--|----------------|---|
| <u>Field:</u>  | E Student No                                     | <b>•</b>       |   |
| Encode method:   | Binary 1,2,4,8                                   | •              |   |
| Encode <u>v</u> alue:  | 987654   |                |   |
| Encoding marks<br>Pre-defined siz<br><u>W</u> idth: 30.0<br><u>H</u> eight: 15.0 | es: Standard<br>00 (300 dpi) ÷<br>00 (300 dpi) ÷ |                |   |
|  |  |                |   |

Click OK.



Add the Constant text "Binary: Student987654 (6 digit maximum)". Use the alignment tools to place the text.

Binary Codes Decimal Same Plane Zone (1, 2, 4, 8)

This is another zone that can be used to show data, or can be marked for single digits in less space.

When both Choices and Repeats are in the same plane (Channel or Row), zones are called "Same Plane Zones". More information can be found in the manual. This is set up in **Properties** of the zone.

Set up a "Short" zone up of 4 choices. For this you need three mouse clicks.



- Right click to finish the zone.
- Open **Properties**.
- > Set the **Response shape** to the fourth from NULL .
In Standard choices... select **Binary encoding**, 1-2-4-8.

| Zone Object        |                                      | ×                 | Ŋ       |
|--------------------|--------------------------------------|-------------------|---------|
| Choice text Matrix | Frame   Plate   Origin   Forma       | t Font            | 3 B C   |
| N Text             | Standard obsisse                     |                   | 3 88 63 |
| 2                  | Letters (lower case)                 | Vhite filled      | 3 88 63 |
| 4                  | Numbers (from 0)<br>Numbers (from 1) |                   | 3 B C   |
|                    | Months                               |                   | 3 88 63 |
|                    | Binary encoding                      | ▶ 1 - 2 - 4       | - 8     |
|                    | Choices                              | • 1-2-4           | - 7     |
|                    | Spanish                              | ▶ <sup>(pi)</sup> |         |
|                    | Vertical: 0.00                       |                   |         |
|                    | ОК                                   | Cancel            |         |

- On the **Matrix** tab, check the **Horizontal origin** is set to **3**, and **Vertical origin** is set to **37**.
- Leave Choices: Count and Spacing as is, and set Repeats: Count to 6, and Spacing to 5. Make sure Repeats are Horizontal.
- On the **Frame** tab, leave all three choices unselected.
- Make sure **Plate** is set to **Blind**.

> On the **Format** zone, set **Horizontal alignment** to **Center** and the **Line spacing** to single.

| 'ertical: rAt Center ▼ Exact: | lorizontal: 🗚 Center 💌 | Type: Single - |
|-------------------------------|------------------------|----------------|
| abs                           | (ertical: 🙀 Center 💌   | Exact:         |
| Auto                          | abs                    |                |
| - Muto                        | • <u>A</u> uto         |                |
| C Equal 0.00 (300 dpi)        | C Equal 0.00 (300 dpi) |                |
| List List setup               | C⊔ist List setup       |                |

- On the **Font** tab, change the **Size** to **6**.
- Click **OK**.

C10C20C40C80 + C10C20C40C80 + C10C20C40C80 + C10C20C40C80 + C10C20C40C80 + C10C20C40C80

- Open **Properties**, and select the **Origin** tab.
- Select **StudentNo** from the drop down menu.

Select **BCD 1,2,4,8** in **Encoding method**, and type in the sample value in **Encoding value**.

| Choice text   Matrix   | : Frame Plate                                    | Origin Format | Font |
|--|--|---------------|------|
| Field:   | Student No                                       |               |      |
| Encode method:   | BCD 1,2,4,8                                      | •             |      |
| Encode value:  | 987654   |               |      |
| Encoding marks<br>Pre-defined siz<br>Width: 30.0<br>Height: 15.0 | es: Standard<br>00 (300 dpi) +<br>00 (300 dpi) + | <b>.</b>      |      |
|  |  | 1             |      |

Click OK.

CHOC23C43CHO + C13C23C43CHO + CHOCHDOC83 + C13CHOC83 + CHOC23CHOC83 + C13C23CHOC83

Add the Constant text "BCD 1 2 4 8: Student987654".

Binary Coded Decimal Random Zone (1, 2, 4, 7)

The last two rows of zones are best done by using a Random zone. For more information on Random Zones see the manual.

- Select the Random zone icon
- With four mouse clicks create a zone of four.



• Right click to complete the zone.



- As this is a Random zone you have to right click and select **Properties** to open the **Properties** dialog box. Open Properties.
- > Select Binary encoding, 1-2-4-7 in .
- Check the **Plate** is set to **Blind**.

- Click OK.
- > There is no tab available in **Properties** to adjust the placement of the zone, so do this manually.
- **Copy** and **Paste** the zone until there are **6** groups of **4**.
- As this is a random zone, you cannot prefill this from a data file.
- Add the Constant text "BCD 1 2 4 7: Student987654 (as single digit random zone)".

|  | 🚍 🚍 🚍 🚍 📕 🔸 Bilvary:+Studen             | t987664 (6 digit maximum)   |  | ٠   |
|--|---|-----------------------------|--|-----|
| CHEC 20C 40C 00 + C 10C 20C 40C 00 + CHEC 00C 10C 80 | + C10C00CH0C80 + CH0C20CH0C80           | + C10C20C+0C80 Bin          | ary: Studen 198 76 54+(6 digit maximum | m)+ |
|  | • |                             |  | •   |
|  | BCD 1 2 4 7: Student987654 (            | as single digit random zone | e)<br>• • • • • • • • •                | •   |

#### Printing the form with merged data

Now that all elements on the form have been defined, it's time to print it with the **data file**. The linked objects will be replaced by the values in the data file. The data file used is defined in **File** menu, **Print...**, (shortcut ctrl + p).

| Print or preview                | ? ×          |
|---------------------------------|--------------|
| Printer: \\PLATO\HP Color Laser | et 4600 PS   |
| General Merge Plates Marks      | s]           |
| ☐ <u>P</u> rint to file         |              |
| <u>C</u> opies: 1 🕂             |              |
| Collate                         |              |
|                                 |              |
| Preview                         | Print Cancel |
|                                 |              |

Select the **Merge** tab.

• To define the data file used, click \_\_\_\_\_\_ and find the .txt file saved earlier.

| nter: \\PLA                   | TO\HP Color Laser.                      | Jet 4600 PS 💌 | Properties     |
|-------------------------------|---|---------------|----------------|
| ieneral Mer<br>Data file (lea | ge Plates Mark:<br>ve emotu if not requ | s  <br>ired)  |                |
| S:\Documer                    | ntation\OnlineManu                      | ial\FoD-OMR\{ | <u>B</u> rowse |
| Input type:                   | Separated values                        | <u> </u>      | Options        |
|                               |   |               |                |

• Confirm which printer to use, then click **Print**.

# CREATING OMR ZONES

# 7

OMR zones are drawn in two ways. On an OMR form, the zones are linked to the form's Response Grid as described in the previous chapter; alternatively the OMR zone can be drawn as an OMR-from-Image zone free form anywhere on the page. As both versions of OMR zones differ only in one aspect, this chapter describes both.

# About OMR zones

Zones are a way of grouping *response shapes* together to present a unified set of choices to the person filling out your form. There are two fundamental types of zone:

- **Matrix zones** are a symmetrical arrangement of a related set of choices. This is the most common type of zone.
- **Random zones** are comprised of a random arrangement of choices, and each random zone can have a unique layout.

Figure 7.1 illustrates the difference between matrix and random zones.



Figure 7.1 Matrix and Random zones

#### Zone elements and choices

Matrix zones are usually arranged in a tabular format, with related response shapes grouped together in either rows or columns. In tabular matrix zones, groups of related response shapes are called *elements* and the individual response positions in an element are called *choices*.



Figure 7.2 Elements and choices

Only matrix zones can have multiple elements in a single zone, random zones are comprised of a single element.

#### 'OMR blind' colors

OMR zones read with an OMR reader are printed in an "OMR blind" color that is invisible to the OMR reader. This prevents your OMR reader from registering the response bubble shape as a mark. OMR blind colors are normally in the red spectrum.

For printing with black only laser printers, use one of the sparse shapes and either place the choice text outside the bubble or print it in a light grey. Test with the OMR reader before committing to large production runs and whenever you move a form to a new printer.

For from-Image zones, the same characteristics apply, and many scanners will also discard the red spectrum "blind" color. Alternately, if you require a zone with a strong outline edge, FoD-OMR will deliver it in black.

### Creating matrix zones

You create a matrix zone with a series of mouse clicks. First you define the orientation of the elements in the zone (along columns or rows), then the spacing between the choices in each element, then the number of choices, and lastly the number of elements.



Figure 7.3 Creating a matrix zone with elements in columns

When adding *OMR zones* to an OMR page, response choices will be placed over the nearest response position, indicated by a red dot on the screen, and the interval is calculated as the number of response positions. All other responses in the zone will be similarly placed, at response positions.

For *from-Image zones*, the actual position is used, the interval to the next position calculated and used to position other responses in the zone. The nearest multiple of the interval is used to calculate the number of responses in the zone and terminating position. Where "snap to grid" is in force, the positions of the responses are centered over the grid position.

To create a matrix zone:

- 1 Click the Matrix Zone tool button.
- 2 Click a response position to place the *first choice* of the *first element* (the upper-left of the zone).
- <sup>3</sup> Click the *second choice* of the *first element* to define the element's orientation (along columns or rows) and the spacing between choices in the elements.
- 4 Click the *last choice* of the *first element* to define the number of choices in each element.
- 5 Click the *first choice* of the *second element* to define the spacing between elements.
- 6 Click the *first choice* of the *last element* to complete the zone.





#### Matrix zones with one or two elements

For matrix zones with less than three choices or elements, click the right mouse button to complete the zone. These are examples:





#### Matrix Zone with choices and elements in the same plane

Matrix zones with both choices and elements in the same plane may be used to collect counts. The example in Figure 7.6 collects three digits.



Figure 7.6 Choices and elements both in the same plane

#### Matrix zone properties

You can adjust the settings you defined when you created the matrix zone, such as the number of elements and choices, from the Matrix tab of Zone Object dialog box:

- The **Horizontal Origin** is the response position from the left of the form for OMR zones, alternately is the measurement from the left of the page for from-Image zones.
- > The **Vertical Origin** is the response position from the top of the form for OMR zones, alternately is the measurement from the left of the page for from-Image zones.

For each of the elements and choices:

- **Repeats** is the number of elements.
- The **Count** is the number of choices.
- Spacing is the number of response positions between elements or choices for OMR zones, alternately is the measurement between choices or elements for from-Image zones.
- > The orientation of elements or choices may be either Horizontal or Vertical.

| • • • • • •                      |                        |  |  |  |  |
|----------------------------------|------------------------|--|--|--|--|
| 00000                            |                        |  |  |  |  |
| 00000                            |                        |  |  |  |  |
| Zone Object                      | <u>? ×</u>             |  |  |  |  |
| Choice text Matrix Frame Plat    | e Origin Format Font   |  |  |  |  |
| Horizontal origin: 750.00 (300 🚔 | 3                      |  |  |  |  |
| Vertical origin: 300.00 (300 🕞   | 3                      |  |  |  |  |
|                                  |                        |  |  |  |  |
| Choices                          | Repeats                |  |  |  |  |
| Count: 3                         | Count: 5 📩             |  |  |  |  |
| Spacing: 75.00 (300 dr 🛋         | Spacing: 75.00 (300 dr |  |  |  |  |
| C Horizontal                     | Horizontal             |  |  |  |  |
| <ul> <li>Vertical</li> </ul>     | C Vertical             |  |  |  |  |
|                                  |                        |  |  |  |  |
| OK                               | Cancel Help            |  |  |  |  |

Figure 7.7 Matrix zone properties

The figure shows the "from-Image" format with measurements; for OMR format, timing mark and response column values are shown. Note that the response shapes are rotated on from-Image Landscape Pages, but not for OMR pages.



Tip:

You can quickly resize a matrix zone, changing the number of elements and choices, by selecting the zone and dragging one of its editing 'handles'.

## Creating random zones

Random OMR zones are placed on the nearest response position. From-image zones are placed at the pointer and it is recommended "snap to grid" be in force to keep positioning regular (see Figure 7.8).

You create a random zone by clicking each response position where you want to place a choice:



- 1 Click the Random Zone tool button.
- 2 Click the response position for the first choice of the zone.
- 3 Click the response positions to place the remaining choices.
- 4 Click the **right** mouse button to define the zone.

| First click — A    |                                 |
|--------------------|---------------------------------|
| Second click ——— B |                                 |
| Third click C      | Eifth alight these              |
| Fourth click D E ← | right mouse button<br>to finish |

Figure 7.8 Creating a random zone

# Assigning text to choices

When designing OMR forms, it's good practice to place text next to each choice so the person filling out the form knows which choice to mark, and FoD-OMR provides many options for automatically applying text to choices.

To set up text for choices:

▶



Select the zone, then click the right mouse button and select Properties from the shortcut menu. Alternatively, with the zone selected, press CTRL+E or click the Properties tool button.

| Zone Object                 | ? ×                            |
|-----------------------------|--------------------------------|
| Choice text   Matrix   Fran | me Plate Origin Format Font    |
| N Text                      | <u>S</u> tandard choices       |
| 2 Feb<br>3 Mar              | Response shape: 🔽 White filled |
| 4 Apr<br>5 May<br>6 Jun     |                                |
| 7 Jul<br>8 Aug<br>9 Sep     | Text appears on: All repeats   |
|                             | Offset from mark               |
| Jan                         | Horizontal: 0.00 in            |
|                             | ⊻ertical: 0.00 in 📩            |
|                             | OK Cancel Help                 |

Figure 7.9 Labelling choices

You can select from the following range of standard text by clicking the **Standard choices** button:

- > Letters (upper and lower case) for each choice, starting with 'A' or 'a'.
- > Numbers for each choice in ascending order, starting with '0' or '1'.
- Months for labelling each choice with the 3-letter month ('Jan', 'Feb', etc.).
- **Binary encoding** for expressing numbers. Typically, these are serial numbers encoded on the form in one of two available encoding schemes.



- Binary encoding is an alternate to bar codes. Bar codes are more reliable and generally much smaller than an OMR matrix or binary encoding scheme. Check the manufacturer's specification to determine what bar code symbologies and densities are read by your equipment and software and test before committing to production volumes.
- > Choices for using one of several Yes-or-No, True-or-False labelling styles.
- > Spanish giving a list of the above choices for Letters and Months.

# Positioning text and response shapes

Different response shapes are available. If the response position appears on a background other than white, such as a rectangle filled with solid colour, or frame stripes, click **White filled** to clearly mark the response position.

You can position text on the first, last or all elements by selecting from the **Text appears on** list as well as offsetting the text from the center of the response using **Offset from mark**. Negative values offset left and top respectively.

The matrix zones in Figure 7.10 have labels on the first element, with the horizontal and vertical positions shifted (a negative adjustment) so the labels appear outside the choice positions.

|   | Jan       Feb       Mar       Apr       May       Jun         (1)       (1)       (1)       (1)       (1)       (1)       (1)         (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)         (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)         (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)         (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)       (1)         (1)       ( |
|---|---|
| B C C C C C<br>C C C C C C C<br>D C C C C C C C |   |

Figure 7.10 Positioned text on matrix zones

#### **Decorating zones**

With FoD-OMR, you can easily add borders, dividers and shading to zones to improve the readability and selection of zone choices.

By clicking the **Frame** tab of the Zone Object dialog box, you can set the style for borders, dividing lines, and alternating stripes.

#### **Border dimensions**

If you add a border to a zone, you can set the distance of the border from the zone choices, and the thickness of the line, from the **Border** tab.Uncheck the **Auto offsets** box to set custom border dimensions.

| Zone Object          |                      |                        | ? ×  |
|----------------------|----------------------|------------------------|------|
| Choice text Ma       | trix Frame Plate     | Origin 🛛 Format 🗍 Font | 1    |
|                      |                      |                        |      |
| Draw Bord            | er Corners Stripes a | nd dividers            |      |
| 🗖 Auto off           | ets                  |                        |      |
| Тор ( <u>А</u> ):    | 0.11 in 💼            |                        |      |
| Left ( <u>B)</u> :   | 0.083 in 🔹           |                        |      |
| Bottom ( <u>C)</u> : | 0.11 in 💻            |                        |      |
| Right ( <u>D)</u> :  | 0.083 in 🔹           |                        |      |
| <u>W</u> idth:       | · · ·                |                        |      |
|                      |                      |                        |      |
|                      | OK                   | Cancel                 | Help |

Figure 7.11 Border

#### Border corners

You can round each of the corners of the border and set the radius of the rounded corners by unchecking the **Auto-size** box on the **Corners** tab.

| Zone Object                                       | ? × |
|---|-----|
| Choice text Matrix Frame Plate Origin Format Font | 1   |
| Draw Border Corners Stripes and dividers          |     |
| ☑ Top-left ( <u>A</u> )                           |     |
| Top-right (B)                                     |     |
| Bottom-right (Ը)     A                            |     |
| Bottom-left (D)     D     D     D     D     C+    |     |
| T Auto-size                                       |     |
| Roundness: 0.35 in                                | Ш   |
|   |     |
| OK Cancel Help                                    |     |

Figure 7.12 Corners

#### Stripes

Adding alternating stripes to large matrix zones greatly eases filling out your form. You can orient the stripes along elements or along choices, and shade the colour of the stripes in your OMR scanner's blind color range (see "OMR blind' colors" on page 7-77).

| Zone Object              |                      |                   | <u>? ×</u> |
|--------------------------|----------------------|-------------------|------------|
| Choice text Matrix Frame | Plate   Ori <u>c</u> | jin   Format   Fo | ont        |
| Draw Border Corners      | Stripes and o        | dividers          |            |
| - Orientation            |                      |                   | -1         |
| C <u>H</u> orizontal     |                      |                   |            |
| Vertical                 |                      | 2222              |            |
|                          |                      | 9999              |            |
|                          |                      |                   |            |
|                          |                      | ļ                 |            |
|                          |                      |                   |            |
|                          |                      |                   |            |
|                          |                      |                   |            |
|                          | ОК                   | Cancel            | Help       |

Figure 7.13 Stripes and Dividers

### Format

By selecting the **Format** tab, you can arrange the text relative to the responses. This operates in conjunction with the **Text Offset from Mark** (see "Positioning text and response shapes" on page 7-83) and gives you precise control over placement and appearance of response text.

From the **Format** tab, you can set the alignment of text, the distance between lines (for text that spans more than one line) and the size of tab spaces, for text with tabs.

|           | One Motor<br>U<br>Vehicle                                | Two Moto<br>Vehicles                      | or                                    | Three Motor<br>Vehicles                              |                          |
|-----------|--|---|---------------------------------------|--|--------------------------|
|           |  | Aligned to<br>horizontall<br>the center y | o the left<br>y and to<br>vertically. |  |                          |
|           | Aligned to the<br>center vertically and<br>horizontally. |   |                                       | Aligned to the<br>horizontally and<br>center vertica | right<br>to the<br>ally. |
| One Motor | Two Motor  | Three Motor                               | One Motor                             | Two Motor  | Three Motor              |

Figure 7.14 Alignment

The line spacing is relative to the font size, but can be changed to an exact measurement by selecting **Exact** from the Line Spacing list, and typing a value for the distance between lines.



Figure 7.15 Spacing

Font

| Z           | Zone Object   |   |       |   |  |           |  | ? × |
|-------------|---|---|-------|---|--|-----------|--|-----|
|             | Choice text   | Matrix                                  | Frame | Plate                                   | Origin                                   | Format    | Font )                                 |     |
|             | <u>N</u> ame:   |   |       |   | S <u>t</u> yle:                          |           | <u>S</u> ize:                          |     |
|             | Arial   |   |       |   | Regular                                  |           | 12                                     |     |
|             | The Arial         The Arial B         The Arial N         The Arial N         The Book         The Book         The Book         The Common | llack<br>Iarrow<br>Antiqua<br>nan Old S | îtyle | •                                       | Regular<br>Italic<br>Bold<br>Bold Italic |           | 12<br>14<br>16<br>18<br>20<br>24<br>28 |     |
|             | <u>U</u> nderline:  | Γ                                       |       |   |  |           |  |     |
|             | <u>O</u> rientation:  | 310                                     |       |   |  |           |  |     |
|             | <u>C</u> olor:  |   |       |   |  |           |  |     |
|             |   |   |       | OK                                      | Car                                      | ncel      | He                                     | elp |
| Orientation | is in degre   | ees                                     |       |   |  |           |  |     |
|             | ų   | tondy disc                              |       | All | opinion -                                | Strongh C |  |     |

From the **Font** tab, you can select font type, orientation of the font and color.

Figure 7.16 Font attributes

# Resizing zones and moving choices

As you edit your form and add zones, you may find you need to change the size of a zone, or the spacing between elements and choices, particularly to accommodate text. FoD-OMR provides a convenient way to change the dimensions and resize zones.

#### Matrix zones

To change the dimensions of a matrix zone:

- 1 Select the matrix zone.
- 2 Drag one of the choices in the zone's top-left corner to change the spacing along that axis.

3 Drag one of the zone's editing handles to increase or decrease the number of choices and elements.



Figure 7.17 Changing Matrix Zones

#### **Random zones**

While you cannot add new choices to a random zone, you can easily change the response position of each zone.

To change the position of random zone choices:

- 1 Select the zone.
- 2 Double-click the choice to move. The mouse cursor changes to a hand indicating editing mode.
- 3 Drag the choice to its new position.
- 4 Repeat steps 2 and 3 with any other choices to be moved.
- 5 Right-click the mouse button or press Esc to leave editing mode.



Figure 7.18 Moving Random Zones

For from-Image forms, it is good practice to have "snap to grid" on before attempting to move random responses as the move will snap to the grid.

#### Duplicating zones with the "CTRL" method

Zones may be duplicated in several ways, the most appropriate for OMR zones is to duplicate them with the "CTRL" method. This is a short-cut "Paste at". For from-Image zones, first ensure that "snap to grid" is on.

Select the zone (or zones) to be duplicated.

With CTRL pressed, select the current object, continue to hold down Mouse Left and a copy of the selection will be "dropped" when you release the pointer. This can be done repetitively and with multiple zones for very fast setup of identical fields (such as test questions).

This technique can be applied to any graphic object.

#### **Combining Zones**

You can combine zones to good effect by drawing the frame and instructions or questions with a "null" response, then overlaying a zone with the choice responses. See below.







Figure 7.20 Overlay Matrix Zones

# CREATING CONSTRAINED HANDPRINT FIELDS



Constrained Handprint fields are used to collect hand printed characters, and are used on from-Image forms. The technique has error rates of around 10% per character for alphanumerics and around 3% for numeric fields in the absence of other validation criteria such as check digits or check totals, which are highly recommended.

# About constrained handprint fields

Constrained handprint fields capture a fixed number of characters with individual bounding boxes for each character. Most constrained handprint fields are printed in the "blind" color for the scanner.

To draw a constrained handprint field:

- 1. Click the Constrained Handprint tool button.
- 2. Draw the frame for the object.
- 3. The Settings Tab within the Constrained Handprint is shown, with the number of characters, which can be adjusted. OK to complete the field.

| Constraint handprint           | ? ×  |
|--------------------------------|------|
| Settings Format Position       |      |
| Number of characters:          |      |
| Character cell                 |      |
| Width: 0.20 in                 |      |
| Height: 0.30 in                |      |
| Gap: 0.033 in 💻                |      |
| Orientation                    |      |
| <ul> <li>Horizontal</li> </ul> |      |
| C Vertical                     |      |
|                                |      |
|                                |      |
|                                | пеір |

Figure 3.1 Constraint handprint settings

## Constrained handprint properties

You can adjust the setting defined when you created the constrained handprint field by double-clicking or by pressing mouse right and selecting **Properties** tool button.



#### Settings

The **Settings** tab (Figure 3.1), defines the physical dimensions of the field.

#### Format

On the **Format** tab, define the appearance of the field.

| Constraint handprint   | X                                       |
|--|---|
| Settings Format Position                                     |   |
| Line<br>Transparent<br>Pattem:<br>Width:<br>Color:<br>Color: | Brush<br>Transparent<br>Fill:<br>Color: |
|  | OK Cancel                               |

Figure 3.2 Constraint handprint format

#### Position

On the **Position** tab, define the position of the field. The bottom "locked" portion of the window shows the overall width and height of the field.

|           |                 | 1    |    |        |
|-----------|-----------------|------|----|--------|
| Constrain | t handprint     |      |    | ×      |
| Settings  | Format Position |      |    |        |
| Left:     | 1.92 in         | •    |    |        |
| Top:      | 2.22 in         | •    |    |        |
| 🗖 Lock    | aspect ratio:   |      |    |        |
| Width:    | 1.37 in         | - A- |    |        |
| Height:   | 0.30 in         |      |    |        |
|           |                 |      |    |        |
|           |                 |      |    |        |
|           |                 |      |    |        |
|           |                 |      | ОК | Cancel |

# WORKING WITH GRAPHICS



This chapter describes the tools available in FoD-OMR to add lines and rectangles, text, barcodes and pictures, and arrange the objects on your form.

# Preparing your workspace

Before beginning a form design session, it is recommended you set up your workspace to include your preferences.

#### Setting preferences

To set the units FoD-OMR uses when displaying measurements, select **Options** from the Tools menu.

| Options                    |  |
|----------------------------|--|
| Preferences Folders        | Custom mask  |
| <u>M</u> easurement units: | 300 dpi (1/300 of inch)<br>millimeters<br>centimeters<br>inches<br>points (1/72 of inch)<br>picas (1/6 of inch)<br>300 dpi (1/300 of inch) |
|                            | OK Cancel  |

Figure 4.1 Options

Select your preferred measurement from the **Measurement units** list.

(We recommend 1/300th measurements as these are round numbers for OMR channel spacing: 50 dots for 6 per inch and 60 dots for 5 per inch. Their smaller choices are respectively 25 and 5 dots and 30 and 6 dots).

#### The object grid

As well as the *response grid*, made up of the response positions on the form, FoD-OMR also has an *object grid*, to guide you when aligning objects. When enabled, the object grid sets the points at which a resized or drawn object 'snaps' to the grid.

To set up the object grid, select **Object Grid** from the Tools menu.

|  | Grid                                |   |          | ? X    |
|--|-------------------------------------|---|----------|--------|
| The placement<br>of the top-left<br>corner of the <u></u><br>grid relative to<br>the page. | Origin<br>Horizontal:<br>Vertical:  | 0.00 (300 dpi)<br>0.00 (300 dpi)<br>h OMR grid    | <b>N</b> | Cancel |
| The distance<br>between grid ——<br>points.   | Spacing<br>Horizontal:<br>Vertical: | 150.00 (300 dpi)<br> 150.00 (300 dpi)<br> MR grid | वन नग    |        |

Figure 4.2 Grid

You can set the precise offset of the *origin* (top-left corner) of the object grid and the grid spacing. For manipulating OMR objects and their frames, set both **Align with OMR Grid** and **Full OMR Grid**.

Click the **Show grid** button to view the object grid (in blue). Click the **Snap to grid** button to enable the object grid.

#### Nudge distance

You can fine-tune the placement of graphics objects by nudging them into place with the keyboard arrow keys. The nudge distance works independently of the object grid.



Select a nudge increment by clicking the **Nudge** tool button.

|                                     | (A) (B) |
|-------------------------------------|---------|
|                                     | (A) (B) |
| Nudge ? 🔀                           | AB 8B   |
| Pre-defined values:                 | AB 8B   |
| 25 (300 dpi)<br>5 (300 dpi)         | AB 8B   |
| Difference between selected objects |         |
| Full OMR grid<br>Half of OMR grid   | ZB (B)  |
| Nudge values                        | A B     |
| Horizontal: 450.00 (300 dpi)        | AB BB   |
| Vertical: 640.00 (300 dpi)          | AB BB   |
|                                     | AB BB   |
| OK Cancel                           |         |
|                                     |         |

Figure 4.3 Nudge

The **Nudge type** list has many preset distances, or you can set your own **Horizontal** and **Vertical** distances.

#### Difference between two objects

If two objects are selected on your form, the additional choice **Difference between selected objects** also appears.

#### Adjusting the zoom

Four zoom settings control how large or small the page appears in the workspace. These are available on a floating toolbar or through the Zoom dialog box.

To view the zoom toolbar:



Click the **Zoom** tool button.



Figure 4.4 The Zoom toolbar

To zoom to a selectable size, click the tool button and drag the mouse around the objects to magnify. The zoom is adjusted to the selected size.

All of the available zoom options can be viewed by selecting **Zoom** from the View menu.

| Zoom 🔀               |
|----------------------|
| Magnification        |
| © <u>1</u> 00%       |
| © <u>7</u> 5%        |
| C <u>P</u> age width |
| C Eull page          |
| C Mouse drag area    |
| Percent     129      |
| OK Cancel            |

Figure 4.5 Zoom options

## Drawing graphics objects

To draw objects such as lines, circles and rectangles, you select a tool from the toolbar, click and hold down the left mouse button on your form, and drag the mouse to size the object.

#### Lines

FoD-OMR provides three tools for drawing horizontal, vertical or diagonal lines.



When drawing or moving a diagonal line:

- Hold the CTRL key down whilst using the mouse to move the end point of the diagonal line. This will round the angle of the line to an increment of 15 degrees
- Hold the SHIFT key down whilst using the mouse to move the midpoint of the diagonal line. This will round the angle of the line to an increment of 5 degrees

To edit the line properties, click on the line to select it and then choose **Properties** from the **Edit** menu. Alternatively, double click on the appropriate line.

On the Format tab, you can edit the line's Pattern, Width, Color and End Cap.

There are three **End Cap** options:

- Round
- Square
- No End Cap



# Figure 4.6 Shape object (line)

#### Squares and rectangles

The rectangle tool is used to draw both squares and rectangles. You can also draw squares or rectangles with rounded corners.



Draw a rectangle or square.

 $\odot$ 

Draw a rectangle or square with rounded corners.

To draw a square, hold down the CTRL key when dragging the mouse to size the object.

#### **Circles and ellipses**

The ellipse tool is used to draw both circles and ellipses.



Draw a circle or ellipse.

To draw a circle, hold down the CTRL while dragging the mouse to create the object.

If you hold down the Shift key when sizing a rectangle or ellipse, the object is drawn from its centre, as shown in the following diagram.



#### Line and fill styles

After creating graphics objects, you can apply different line styles and fill features to enhance their appearance. You can control the weight (thickness) and color of the lines that make up objects and can select the pattern and color of filled objects.



To change the line and fill styles for graphic objects, select the object and click the **Properties** button, or type CTRL-E.

| From the <b>Format</b> t<br>a pattern and width<br>the object, and the b<br>filled objects such as<br>squares. The color fo<br>brush can also be se | ab, you can select<br>for the outline of<br>rush pattern for<br>s circles and<br>or the outline and<br>lected. | Shape object Format Plate Posit Line Pgiterr. Qidtr. Loor Line End cap. |           | <u>3</u>  × |
|---|--|---|-----------|-------------|
| Format Plate Position   |  |   | OK Cancel | Help        |
| Line<br>Iransparent<br>Pattern:<br>Width:<br>Color:<br>Bounded corners rectar   | Brush<br>Transparent<br>Eilt:<br>Color:<br>IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII                                | ▼<br>▲<br>▼   |           |             |
|   | OK Cancel  | Help  |           |             |

Figure 4.7 Shape Object (box, oval)

The Figure 4.7 above shows some of the available patterns you can use to fill solid objects such as rectangles or circles.

#### Adding text

Each text object on a FoD-OMR form is contained within a *text frame*, from which the alignment and orientation of the text itself is calculated.



To add a text object to a form, select the **Text** tool button and draw the text frame on the form. When you have sized the text frame, the Text Object dialog box opens.

| Text Object                           | ? X                 |
|---------------------------------------|---------------------|
| Definition Format Plate Position Font |                     |
| Examination ID                        |                     |
| Link selection Link <u>a</u> ll       |                     |
| Sample Text Record name               | <u>E</u> dit link   |
|                                       | <u>D</u> elete link |
|                                       |                     |
| OK Cancel                             | Help                |

Figure 4.8 Text Object

#### Definition

The **Definition** tab contains the actual text that appears in the frame, as well as tools for linking to records in a data file. More information about linking text is available in Chapter 4, "Merging Data from Files".

If you type more text than can fit in the text frame, the frame automatically resizes to include all the text.

#### Linked text

FoD-OMR has a powerful feature that integrates information from data files into your form. The source of your text object can be either *fixed* (the text from the **Definition** tab is constant for each form) or can be linked to records within a data file (such as application or spreadsheet output).

To extract information from data files, you link text from the definition tab to external data records. This feature is fully discussed in Chapter 4, "Merging data from files".

#### Format

From the **Format** tab, you can set the properties of the text within the text frame. The **Alignment** is the position of the text relative to the frame. Text can be horizontally aligned to the left, centre and right, but also to a decimal point. When **decimal** alignment is selected, the text is aligned against the first decimal point that appears on a line.



Figure 4.9 Decimal alignment

For text frames that contain large amount of text, you can also set the **line spacing** and **word wrap** properties for the frame, as well as the distance of the **Tab** stops.

| Text Object   | ? ×                    |
|---|------------------------|
| Definition Format Plate Position F  | ont                    |
| Alignment     Lin       Horizontal:     000       Vertical:     127       Top     E | vpe: Single 💌<br>xact: |
| Tabs<br>• Auto  |                        |
| C Equal 0.00 (300 dpi)  |                        |
| C List List setup   |                        |
| └── <u>W</u> ord wrap   |                        |
| OK  | Cancel Help            |

Figure 4.10 Setting the format of text within a text frame

#### Font

The **Font** tab on the Text Object dialog box has the settings for the appearance of text within the frame.

As well as the typeface, style and size of the font, you can also set the orientation of the text within the frame, and the text color.

| Text Object  |  | ? ×  |
|--|--|--|
| Definition Format Plate Position   | n Font                                   |  |
| <u>N</u> ame:<br>Arial   | S <u>t</u> yle:<br>Regular               | <u>S</u> ize:                              |
| The Arial         The Arial Black         The Arial Narrow         The Book Antiqua         The Book Matigua         The Book Book Book Style         The Doomic Same MS | Regular<br>Italic<br>Bold<br>Bold Italic | 12 ▲<br>14<br>16<br>18<br>20<br>24<br>28 ▼ |
| Underline: 🔽<br>Orientation: 🗛 < ¥ 🔈   |  |  |
|  |  |  |
| OK   | Cancel                                   | Help                                       |

Figure 4.11 Setting Font properties

Once you set up the properties of your text object, the text frame is resized to automatically enclose the text entered on the **Definition** tab.

#### Adding barcodes

Barcodes are useful to add to your form, particularly if your OMR scanner has a barcode reader. For most scanners with barcode readers, barcodes must be printed so that their lines are at right angles to the long edge of the form.

Like text objects, barcodes can either have a fixed value or a value linked to a field in a data file record and merged when the form is printed.

For example, if you had a file containing a series of numbers you wish to encode as barcodes on your forms, you can create a single barcode object and instruct FoD-OMR to extract the data for that barcode from the data file. Before linking to information in a data file, you need to set up the data file records (where the data in the file can be found). More information on linking to data in files can be found in Chapter4, "Merging data from files". To add a barcode object to a form, select the **Barcode** tool button and draw the frame on the form. When you have sized the barcode frame, the Barcode Object dialog box opens.

| arcode Object           |                  | ? ×                 |
|-------------------------|------------------|---------------------|
| Definition Format Plate | Position Font    |                     |
| Symbology: Code 128     | <b>T</b>         |                     |
| <u>T</u> ext:           |                  |                     |
| Link selection          | Link <u>a</u> ll |                     |
| Linked <u>f</u> ields:  |                  |                     |
| Sample Text             | Record name      | <u>E</u> dit link   |
|                         |                  | <u>D</u> elete link |
| ,                       |                  |                     |
|                         | OK Cance         | Help                |

Figure 4.12 The Barcode Object dialog box

#### Definition

From the **Definition** tab, you can select the **Symbology** from many encoding styles in the list, and in the **Text** box, type the value represented by the barcode.

Before the barcode is created, the encoded value is formatted according to the barcode symbology. If your **Text** value cannot be encoded by the selected symbology (for example, letters cannot be encoded by 'Code 2 of 5'), the barcode object is not created.

#### Format

From the **Format** tab, you can select whether to display the text value of the barcode, the text position, and the orientation of the barcode.

| Barcode Object   |                   | ?×   |
|--|-------------------|------|
| Barcode Object<br>Definition Format Pl,<br>Text Location<br>○ <u>H</u> idden<br>○ <u>U</u> nder pattern<br>○ <u>O</u> ver pattern<br>▼ <u>R</u> otated | ate Position Font | ? ×  |
|  | OK Cancel         | Help |

Figure 4.13 The barcode format

If you display the text, you can set the font and style from the **Font** tab.

#### PDF417 barcode - special conditions

PDF417 barcodes are two-dimensional and have additional properties that are easily included into the object by masking additional data onto the front of the text string that will be converted into the PDF417 barcode. These properties are the Number of Data Character Columns, and the Security (used to assist reading of a damaged or obscured barcode). The defaults are 8 data columns, and a security level of 3 (security runs from 1-lowest to 8-highest and impacts the finished size of the bar code. For this application, the default security level is more than adequate).

PDF417 barcodes cannot be read by OMR Scanners.

To change Data Columns and/or Security, mask this string to the front of the barcode text:

~C~S~where C is Columns and S is Security. Security may be omitted.



The quick brown fox jumped over the lazy dog 1956 times.

Figure 4.14 PDF417 Barcode

#### Inserting pictures

A picture object on a form can be linked to a graphics file and merged when the form is printed.

To insert a picture:



- 1 Click the **Picture** button.
- 2 Locate the file containing the picture and click **OK**.

Double-click the image to set its properties.

| Picture obje                 | ect                    |        | <u>?×</u> |
|------------------------------|------------------------|--------|-----------|
| Settings                     | Position               |        |           |
| <u>P</u> icture:             | C:\WINDOWS\Circles.bmp |        | 20        |
| 🗖 Linke                      | d                      |        |           |
| <mark>⊠</mark> <u>S</u> cala | ble                    |        |           |
|                              |                        |        |           |
|                              |                        |        |           |
|                              |                        |        |           |
|                              |                        |        |           |
|                              |                        |        |           |
|                              |                        |        |           |
|                              | (OK)                   | Cancel | Help      |

Figure 4.15 The Picture Object dialog box

To merge the picture from the file when the form is printed, click the **Linked** check box. To be able to adjust the dimensions of the picture, check the **Scalable** check box. Please note, Linked pictures will slow production at runtime, especially where the image has been scaled.

You can also set the image location on the form and scale the picture manually from the **Position** tab, where you can enter the precise position and dimensions for the picture. If you check the **Lock aspect ratio** box, the dimensions are scaled proportionally to retain the ratio of the picture's width to its height. This is useful for resizing a picture to a specific width or height without distorting the image.

| Picture of | bject            | ? ×  |
|------------|------------------|------|
| Settings   | Position         |      |
| Left:      | 650.25 (300 dpi) |      |
| Top:       | 584.75 (300 dpi) |      |
| 🗖 Loc      | ck aspect ratio: |      |
| Width:     | 162.00 (300 dpi) |      |
| Height:    | 53.75 (300 dpi)  |      |
|            |                  |      |
|            |                  |      |
|            |                  |      |
|            | OK Cancel        | Help |

Figure 4.16 Setting the pictures place and dimensions

## Arranging objects on your form

FoD-OMR offers many ways to arrange your form to enhance its appearance and usability.



Undoing and repeating actions

As you arrange the objects on your form, remember to use the **Undo** and **Redo** tools to correct mistakes.

#### Cut and Paste



You can use the **Cut**, **Copy**, **Paste** and **Paste At** buttons on the toolbar to duplicate a selected object or group of objects.

When pasting an object from the clipboard, you can select the location for the new object by clicking the **Paste at** button and selecting the location for the upper-left corner of the object.

The **Duplicate** command (CTRL+D) in the Edit menu makes a copy of the selected object or group of objects and slightly offsets it from the original.

You can also duplicate and item using the CTRL key and drag and drop. While holding the CTRL key down click the object to select it. Holding the left mouse button down drag the new object to a different location.



### Moving and resizing objects

You can easily move an object by selecting it with the mouse and dragging the object to a new location on the form.

When moving an object, you can **Nudge** it by using the keyboard arrow keys for finer control of its placement. See "Nudge distance" on page 92 for more information.

#### Grouping and ungrouping objects

By grouping several objects together, you can control them as a single object. This is useful when you need to move, resize, or align them as a single object. You can combine a group with other objects, or even other groups.



#### To group objects:

1 Select the objects by holding down the Shift key and clicking each object. A set of handles appear around the selected objects.

- 2 Choose **Group** from the Edit menu, or type CTRL+G. A set of handles appear around the grouped objects.
- **To ungroup objects, select the grouped objects and select <b>Ungroup** from the Edit menu. Handles appear on each object in the group. If there appears to be more grouped objects in the group, you may have to select the remaining objects and apply the ungroup command again.

You can resize a single object or group of objects on your form in different vertical and horizontal proportions by dragging one of the object's editing handles with your mouse.



Unlike other objects, barcodes shift in fixed sizes when dragged to increase or decrease the barcode density. Each fixed size adds or subtracts one pixel to the small bar with corresponding changes to all of the other bars and spaces.



#### Resizing text

Text that appears within text or barcode objects can be resized using the **Increase Font** and **Decrease Font** tool buttons. The font of your object decreases by one point each time you click on this tool button.

#### **Multiple Object Sizing**

You can resize objects by using the **Size** function, which adjusts the scale of objects according to other objects in the selection. For example, in Figure 4.17, the grey rectangle was resized to the same dimensions as the white rectangle.



Figure 4.17 Multiple object sizing

To size objects, select the objects by holding the Shift key and clicking each object, then select a **Size** option from the Tools menu.

#### Moving angled lines

You can move the either handle of an angled line to change its length and angle. Two special keys can be used to control the angle. Pressing CTRL while moving the handle rounds to a 15 degree angle, while pressing SHIFT rounds to a 5 degree angle for finer adjustment.

### Aligning objects

With FoD-OMR's alignment tools, you can accurately line up rectangles, lines and other graphics objects. There are tools for aligning parts of an object (top, bottom, left and right), or a group of objects to other objects, and you can align selected objects exactly between the top and bottom or left and right of other objects.

Additionally, with the stretch alignment tool, you can align the dimensions of objects, resizing them.

# #

#### To view the alignment tool panel, click the **Alignment** button.



Figure 4.18 The alignment tool panel

The following diagrams illustrate how you can use the alignment panel tools.







Stretch alignment



With stretch alignment, you fit objects together by resizing them when they are aligned. Click the **Stretch** tool button on the alignment panel to enable stretch alignment.

With Stretch Alignment, you can stretch-align an object to fit exactly between another object. For example, in Figure 4.19, stretch alignment is used to stretch the line to fit exactly in the box.



Figure 4.19 Stretch alignment

All of the tools on the alignment tool panel are also available from the **Tools** menu.

## Changing object stacking

When you create an object, FoD-OMR places it on top (in front) of any other objects already on your form. Using object stacking allows you to control how objects overlap.

To change the overlapping order of objects on your form:

- 1 Select the object from the display.
- 2 Choose **Order** from the Edit menu and select **Bring to Front**.
- 3 Or, to push the object behind all others, select **Order** from the Edit menu and select **Send to Back**.


The tool buttons for these operations are shown in the following diagram.

Figure 4.20 Object stacking

# MERGING DATA FROM FILES

# 5

You can insert data from files into zone, text and barcode objects on your form, and dynamically merge the data when the form is printed. This is similar to the 'mail merge' feature found in word processors, but considerably more powerful.

Data files can be any form of plain text file, and usually contain the output of database or spreadsheet applications.

There are two main ways to configure FoD-OMR to use data files:

- If the first row of your data file contains the field name, FoD-OMR can use this row to identify each column and extract the information to the relevant data field. This option is only available when using delimited (sometimes called CSV) files. *See "Printing forms with merged data" on page 117. on this option.*
- Where the data is in a fixed field format or a delimited file without headings, FoD-OMR objects are set up to reference a specific data field when the form is printed.

#### Preparing your data files

FoD-OMR can use data files in two distinct 'formats':

- Fixed data files have the same data field always at the same location on each line in the data file. Fields in fixed data files have two properties: a start position and a length (in characters).
- Delimited data files have their fields separated by a character known as a *delimiter*.
  When the first row of your data file contains the field names FoD-OMR can use this row to identify each column and extract the information to the relevant data field.

Fields are grouped together in *records*, which are terminated by the line feed character. For each record in a data file, FoD-OMR extracts the data from its fields and prints one form.

Figure 5.1 shows a data file representing the same data in fixed format, delimited format with headings and separated format without headings. Delimited files with headers offer the most flexibility and should be preferred as a data source. The ability for the field names to be carried as headers in the first record enable both simpler form design and ease of data manipulation.

The delimited format uses the comma as the delimiter and double quotation marks surround text items. The double quotation marks are known as the *text qualifier* as they indicate text fields.

| 🖉 Untitled - Notepad 💶 🗾 🔟   |  |                            |  |   |
|--|--|----------------------------|--|---|
| File Edit Format   | Help   |                            |  |   |
| AARDVARK<br>BROWN<br>CASH<br>DWYER<br>EVANS  | Andrew<br>Bryan<br>Charles<br>Dylan<br>Evan  | 14<br>13<br>13<br>14<br>14 | 654818<br>657917<br>653146<br>651347<br>657376 | • |
| Surname, Fir<br>"AARDVARK",")<br>"BROWN","Dyla<br>"CASH","char<br>"DWYER","Dyla<br>"EVANS","EVAN | stname, Age, St<br>Andrew",14,6548<br>an",13,657917<br>les",13,653147<br>an",14,651347<br>n",14,657376 | udentNo<br>313             |  |   |
| "AARDVARK", "/<br>"BROWN", "Dyla<br>"CASH", "char<br>"DwyER", "Dyla<br>"EVANS", "Evar            | Andrew",14,6548<br>an",13,657917<br>les",13,653147<br>an",14,651347<br>n",14,657376                    | 313                        |  | _ |

Figure 5.1 Data file formats

When merging data from files, you can change the appearance of your form without impact on the structure of the data file. Similarly, you can change the structure of the data file without modifying the form's layout.

#### **Defining fields**

When a form is printed that contains objects that merge data from a file, FoD-OMR opens the file, and extracts the required data from defined fields. The number of lines in the file (records) determines the number of forms that are printed.

When you define the structure of your data file, each field is labelled, and the information contained in the fields can be displayed in several places on your form, and in different formats (such as both a barcode and a matrix zone).

Before you define your fields, it is recommended you have a sample data file handy to reference the fields in each record.

#### Defining fields for delimited data formats

To define fields for delimited data formats, select **External Data** from the **Tools** menu to open the **Field Definitions** dialog box.



Figure 5.2 Setting up fixed data field definitions

- 1 Click **New** to create a new field. If this is the first field for a new form definition, you will need to select the type of input data file.
- 2 Type a **Name** for the field. If you are using a delimited data format with headings enter each column heading as a field name. At merge time FoD-OMR will identify each column using these headings and extract the information into the fields on the form.
- <sup>3</sup> You do not have to set a maximum length for fields in a delimited data file as these are automatically detected by FoD-OMR, but it is good practice to enter the length as an aid to defining the correct length of the field.

#### Defining fields for fixed data formats

To define fields for fixed data formats, select **External Data** from the Tools menu to open the Field Definitions dialog box.

| Field name<br>and enter its start<br>position and length  Field Definitions    Field  Records    Name  Start    Start  36    Length:  8                  | Click the <b>Ne</b><br>create a nev                             | v button to<br>field definition  |  |
|--|---|--|--|
| Field      Image: StudentNol      OK        Name:      StudentNol      OK        Start:      36      Cancel        Length:      8      Image: StudentNol | Type a field name<br>and enter its start<br>position and length | Field Definitions    Records    Maintenance mode    New    Edit    Delete    Print    Start  |  |
| UK Cancel Help   | Field    Name:  StudentNol    Start:  36    Length:  8          | Name  Statt  Length    Image: Statt  Length  1    Image: Statt  1  17    Image: S |  |

Figure 5.3 Setting up fixed data field definitions

- 1 Click **New** to create a new field. If this is the first field for a new form definition, you will need to select the type of input data file.
- 2 Type a **Name** for the field. This label is then available as a link selection.
- 3 If the field is in a fixed data file, enter a **Length** for the field and a **Start** position if the field does not immediately follow the preceding one. The **Start** position is automatically updated when more fields are defined.

#### Editing fixed fields

If your data is extracted from a fixed data file, you can easily change the positions of the fields in each record by selecting the field and clicking the **Edit** button.

To change the start position of a particular field, and automatically update the start positions of all the fields that follow it, click the **Shift** button and enter an offset to increase or decrease the start position.

| Shift fields   | ?×        |
|--|-----------|
| 2<br>Positive values increase starting<br>negative - descrease | position, |
| OK   | Cancel    |

Figure 5.4 Shifting the start position of a field

#### Linking to fields



Once you have defined your fields, they are available for linking to text, barcode and zone objects (see Figure 5.5).

Figure 5.5 Linking fields

To use the data extracted from the fields in your form, you link the text from the **Definition** tab of zone, text or barcode objects.

To create a link to a field:

- 1 Create a text object on your form.
- 2 From the **Definition** tab, type in some sample text for the object.
- 3 To link part of your sample text to a field in your data file, select the sample text to be replaced and click **Link selection**. To link the entire source of an object to a field, click **Link all**.

<u>.</u>...

- 4 Select the defined **Field** or click the **Finder** button to create a new field definition.
- 5 The linked text is underlined in boldface on the **Definition** tab, and the link is added to the **Linked records** list (see Figure 5.6).

| Text Object             |                       | <u>? ×</u> |
|-------------------------|-----------------------|------------|
| Definition Format Plate | e Position Font       |            |
| Page: <u>001</u>        |                       |            |
| Link selection          | Link all              |            |
| Sample Text             | Record name Edit link |            |
| 001                     | Page<br>Delete li     | nk         |
|                         | OK Cancel H           | elp        |

Figure 5.6 A text object displaying the page number

As well as the fields you define from your data file, FoD-OMR makes the following fields available for your form:

- **Page** is the current page number of this form in the batch print run.
- Next page and Previous page are reserved for booklet printing.
- **Date** is the date the form is printed.

To change the properties of the link, select the link from the list and click the **Edit link** button. To remove the link altogether, click **Delete link**.

#### Masking

When you link to a field, you can format the data that is extracted from the file in one of many available styles.

#### Masking dates

When you use date masking, you select the **Input format** of the date (the order of the day, the month and the year) and an **Output format** (how the date appears). You can also change the character used as a date separator and whether the year is two digits or four digits.



If the date field contains two separators (any non-numeric characters such as '/' or '-'), FoD-OMR automatically formats the date field.

If there are no separators, the date field must be either 6 or 8 characters. If it is 6 characters, a 2-digit year is used, whereas a 4-digit year is used for fields of 8 characters. If you mask non-separated date fields (such as '31122002'), be sure your day and month fields are 'zero prefixed' - using '01' instead of '1'.



#### Masking currency

FoD-OMR provides many ways of formatting currency values: you can create your own formatting **Amount/Numeric** style, you can use the **Wordy** style to write out the amount in words, or format the amount as **Cents**.

All currency formats have a setting for detecting decimal fractions. If **Use decimal separator** is selected, FoD-OMR searches the data field for a decimal place and formats the amount on the left side of the decimal as 'dollars' and the amount on the right side as 'cents'. If no decimal place is found, the amount is formatted as whole dollars.

If **Always assume two decimals** is selected, FoD-OMR ignores any separators and formats the last two digits as 'cents' and all other digits as 'dollars'.

#### Amount/Numeric

With this style, you exactly define the appearance of a currency amount.

Currency

From this tab, you can select the character used as the currency symbol, its placement on the left or right side of the amount, and whether to separate the symbol from the numbers with a space.

Separators

From this tab, you can select the characters used to separate thousands and decimals.

Numbers

From this tab, you can design how negative numbers are formatted. For the **Negative sign** you can represent negative numbers as a debit and positive numbers as a credit, use a the '-' character or surround the amount in brackets. An **Extra space** can separate the negative symbol from the amount.

You can increase the precision of the decimal numbers that are formatted in the **Number of decimals** box.

| SF12.345 00                          |                                   |        |
|--------------------------------------|-----------------------------------|--------|
| Text Object                          | <u>?</u> ×                        |        |
| Definition Format Position Fon       |                                   |        |
| 00012345                             | Link to field                     | ? ×    |
|                                      | Field: 🖹 Amount 💌                 | OK     |
|                                      | Mask as: Amount / Numeric         | Cancel |
| Link selection                       | Input Currency Separators Numbers | (      |
| Linked records:                      | Thousands:                        |        |
| Sample Text Record<br>00012345 Amoun | r<br>Decimals: (space) 💌          |        |
|                                      |                                   |        |
|                                      |                                   | Save   |
| ОК                                   |                                   |        |

Figure 5.7 Designing a custom currency format

If you are going to re-use your custom formatting, click **Save** and name the formatting style. The style remains available by selecting **Custom** from the Mask list.

| Amount in data field    | Negative symbol is (12)<br>Assume two decimals   |
|-------------------------|--|
| -10234567<br>002305.30- | (\$102,345.67)<br>\$2,305.30Cr                   |
|                         | Negative symbol is 12Cr<br>Use decimal separator |

Custom masks can also be created, edited and deleted under the **Options** menu available from the **Tools** menu. A list of the currently defined custom masks appears on the **Custom** tab.

| Options                      |                | <u>?</u> × |
|------------------------------|----------------|------------|
| Preferences Folders Custom n | nask           |            |
| <u>C</u> urrently defined:   |                |            |
| custom mask                  | <u>N</u> ew    |            |
|                              | <u>E</u> dit   |            |
|                              | <u>D</u> elete |            |
|                              |                |            |
|                              |                |            |
|                              |                |            |
|                              |                |            |
|                              |                |            |
|                              |                |            |
|                              |                |            |

Figure 5.8 Custom mask

#### Wordy

The **Wordy** style writes out the amount in words.

| Amount in data field | Wordy style<br>Assume two decimals |
|----------------------|------------------------------------|
| 37.56                | THIRTY SEVEN                       |
| 3756                 | DOLLARS AND 56 CENTS               |

#### Units

The **Units** style takes the first character of the amount in the data field and represents it as a word.



#### Cents

This style only displays the decimal portion of the amount.



#### Printing forms with merged data

When you print your form containing linked objects, you select the data file to merge for the current print run. FoD-OMR opens the file and examines the first record (line), extracting the data for its fields. Linked objects are created with the data in the fields and the form is printed.



The process repeats for each record in the file, with one record corresponding to a single form.

Click the **Print** button to open the Print dialog box and select the **Merge** tab.

| Print or preview                         | ? ×                 |
|--|---------------------|
| Printer: Postscript Printer              | P <u>r</u> operties |
| General Merge Plates Marks               |                     |
| Data file (leave empty if not required)  |                     |
| C:\forms\student records.txt             | <u>B</u> rowse      |
| Input type: Flips 3.x fixed size records | Options             |
|  |                     |
|  |                     |
| Preview Print                            | Cancel              |



From the **Merge** tab, click **Browse** to locate the data file. FoD-OMR accepts two different Input types for data files:

- 1 **FLIPS 3.x fixed size records** is for fixed data files.
- 2 **Separated values** is for separated data files. Click **Options** to select the delimiter used between fields:

| Options   | ? ×          |
|---|--------------|
| Field delimiter<br>© Comma (.)<br>© Semicolon (:)<br>© Lab<br>© Other | OK<br>Cancel |
| T <u>e</u> xt qualifier: Double quote ('')                            | •            |

Figure 5.10 Options for delimited files

Some databases and spreadsheets enclose text fields in a single or double quotation mark. FoD-OMR can remove this character when extracting text if you select the **Text qualifier** used.

Most databases and spreadsheets also put the name of each field in the first record of their file, like a table header. If your data file is formatted in this way, you can select **First row contains field names**. When this option is checked FoD-OMR will use the first row to identify each column and extract the information to the relevant data field.

If your data file does not have column headers the order of extraction is determined by the start position of each data field. The first column in the data is extracted to the first data field, the second column to the second data field and so forth. For more information on defining the start position of a data field see "Defining fields" on page 5-109.

Click **Print** to merge the files and print them, or **Preview** to view a sample of the print run.

# **KNOWN ISSUES**



Outlined below are known issues which have been encountered while using FoD-OMR.

#### **Smooth Edges**

When designing an OMR form the objects, such as response shapes, may appear incomplete. This is caused by a problem with how windows displays TrueType fonts.



Figure A.1

To correct the problem you will need to turn on the **Smooth edges of screen fonts** option.

In Windows 2000, this setting can be found on the Effects tab of Display Properties. Display Properties can be accessed from the Control Panel.

| Background Screen Saver Appearance Web Effects Set  | ngs                    |
|---|------------------------|
| Desktop icons   | Rec                    |
| Change Icon Default ic  Visual effects  Visual effects  Visual effects  Visual effects for menus and tooltps  Fade effect | Smooth edges o         |
| Smooth edges of screen fonts  Use large icons  Show icons using all possible colors                                       | screen fonts<br>option |
| Show window contents while dragging   |                        |
| OK Cancel   | Арру                   |

In Windows XP, you can access this option from the Appearance tab of Display Properties, which is under the Control Panel. Click the Effects button and ensure that Use the following method to smooth edges of screen fonts is checked and set to ClearType.



When this option is selected the problem will be resolved.



# **BATCH PRINTING**



FoD-OMR accepts command-line arguments with which you can automate batch printing and control the data files merged with forms when printing.

# Command line arguments

Use one of the following command line formats:

FoDOMR

Creates a new file.

FoDOMR <formname>

Opens the form file.

FoDOMR <formname> /p

Prints the form file to the default printer.

FoDOMR <formname> /pt <printer> [driver port]

Prints the form file to a specific printer, optionally specifying a printer driver and port.

FoDOMR /po

When used with either the /p or /pt arguments, allows you to further specify the following options.

| Print option                 | Description  | Default value                          |
|------------------------------|--|--|
| copi es=xxx                  | Number of copies   | 1                                      |
| collate                      | Collate forms when printing                                | Do not collate                         |
| out= <filename></filename>   | Print to file  | Print to default printer               |
| merge= <filename></filename> | Merge from data file                                       | No default data file                   |
| delimited                    | Data file is a separated file                              | Data file is a fixed file              |
| delimiter=x                  | Delimiter used to separate fields in a separated data file | Comma                                  |
| qual i fi er=x               | Text qualifier, if used in a separated data file           | Double quote                           |
| names                        | The first row of the delimited file contains field names   | First row does not contain field names |

For more information about how data is merged during batch printing, see *Chapter 4, Merging Data from Files.* 

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