

# The Continuous Line Conundrum

Rich Gorvin



Invoices frequently have columns for various details and values. How can you make an invoice in Access that's as smart-looking as a word-processed invoice? The main problem is the age-old one of vertical lines on reports—if a report section grows, do the lines also grow to the same height? Rich Gorvin offers a solution.

**T**HE time had come for me to transfer invoicing over to Access. My management was concerned that an Access-generated invoice wouldn't be as flexible as one created by a word processor, especially in terms of values being alterable “on the fly.” They were also concerned about whether it would look as neat, tidy, and professional as the existing invoices.

Some background to the application might help explain the design problem I was faced with. I work for a private English language school (teaching ESL/EFL—English tuition to non-native speakers). Most organizations in this field have their own particular way of structuring the often numerous courses they offer. As a result, an “off-the-shelf” database rarely suits the exact way each school operates. Therefore, four years ago I decided to learn Access to design a database to handle all our various departments. The one area that was missing was an invoicing capability. There were two reasons:

- The school already had a fairly workable system that used Microsoft Word to print out professional-looking invoices (using combo boxes and calculated fields).
- It was an area that was clearly going to challenge my knowledge of Access if I was going to be able to include the flexibility required while mimicking the print layout of a Word document.

## The invoice requirements

I needed to create a professional-looking invoice that was comparable to the existing invoice. The column describing the product/service/course needed to be able to display a fairly long description. The school's clients are either agents working overseas (who act as intermediaries between students looking for a language course and the various schools) or individual students booking on a course in the U.K. The internal service/course description that the school registration department used (for example,

Course A, Course B) wouldn't suffice, as the client needed an unambiguous, detailed description. There also needed to be columns on the Net Invoice for Gross Fees, Discount Percentage, Quantity of Service (usually the number of weeks for which the student was booked), Net Fees, a Sub Total (per invoice line), and a column showing Agent's Commission. The invoice needed to be A4 size with portrait orientation (to fit in with existing archiving of documentation).

As with most complex reports, the invoice was going to consist of a main report and a number of subreports. The client's address (in the example that I'll use, an agent in Poland) and the student's details would come from two subreports, while a third subreport would supply the details of the order/service/course lines.

It was soon evident that there was going to be a problem with the field on the subreport displaying the course/service description because the data in this field can vary quite considerably in length. It wasn't possible to make the box wide enough to accommodate a full description, so the answer seemed to lie in utilizing the Can Grow Property for that text box. However, I wanted to have continuous vertical lines on the report between each column, and this presented some problems.

There were two partial solutions that I was already familiar with, though both had their drawbacks.

## Solution 1

I added a border to each field/text box, then aligned them carefully and hoped that no box needed to grow (a fairly unrealistic hope, as I already knew txtService was likely to exceed the width). If one text box contained more information than the width, I could either leave it as it was with truncated data (hardly professional, ending mid-way through a description or word) or I could set the Can Grow Property to Yes, but the text boxes and their borders had varying heights then (though at least all of the data was given). I knew that complete descriptions were required, so txtService was set to Can Grow. The vertical lines grew, but aligning them was fiddly, and, if one text box grew to a larger height, there was a difference in text box heights (see [Figure 1](#)). Having boxes of different heights on the same invoice row didn't look

very orderly.

Aesthetically, the text was very close to the border, and the disjointed horizontal lines weren't that pleasing to the eye (in my opinion).

### Solution 2

I removed all borders from the text boxes. I then drew vertical lines (using the Line tool on the Toolbox) between the fields/text boxes. This dispensed with displaying horizontal lines between each row (which Solution 1 created as part of a border).

The problem here is the broken vertical lines if one (or more) row is increased in height. Naturally, the text box with the Can Grow Property set to Yes grew (giving me

the full description as desired), but the vertical lines drawn by the Line tool remained at the original height for the Detail section. Lines drawn with the Line tool don't have a Can Grow property, and the Height property can't be set via coding.

I ended up with a semi-continuous line (see Figure 2) broken in two places. It looked untidy and not totally professional. Other than drawing over and continuing the line using a ruler and pen, this solution didn't solve the problem of trying to create a professional looking invoice using Access.

### Solution 3

This is the solution that I settled on to give me a

Course or Service	Start	End	Gross Fee	Weeks/Quantity	Disc. %	Nett Fee	Subtotal	Commission
Course A - General English	10/07/2000	04/08/2000	£102.00	4	20.00	£81.60	£326.40	£81.60
Course B - General and Specialised English	07/08/2000	22/09/2000	£130.00	7	20.00	£104.00	£728.00	£182.00
Summer Host Family Accommodation for extra night(s) - single room	08/07/2000	08/07/2000	£11.00	1	0.00	£11.00	£11.00	£0.00
Summer Host Family Accommodation for a week - single room	09/07/2000	26/08/2000	£73.00	7	0.00	£73.00	£511.00	£0.00
Airport Transfer One Way			£90.00	1	0.00	£90.00	£90.00	£0.00
Cambridge FCE Examination Fee			£60.00	1	0.00	£60.00	£60.00	£0.00
Additional sundry charges			£15.00	11	0.00	£15.00	£165.00	£0.00
Additional sundry charges			£10.00	11	0.00	£10.00	£110.00	£0.00

\*Sundry 

1. Packed Lunch
2. Pocket money

Nett Invoice	Commission
Total £2,001.40	£263.60

Figure 1. The invoice subreport with borders around each text box.

Course or Service	Start	End	Gross Fee	Weeks/Quantity	Disc. %	Nett Fee	Subtotal	Commission
Course A - General English	10/07/2000	04/08/2000	£102.00	4	20.00	£81.60	£326.40	£81.60
Course B - General and Specialised English	07/08/2000	22/09/2000	£130.00	7	20.00	£104.00	£728.00	£182.00
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Figure 2. The vertical lines aren't continuous.

continuous line. I'd looked through various sources, including *Smart Access*, a number of Access Developer's Handbooks, newsgroups, and discussion forums. Most provided partial solutions similar to Solutions 1 and 2. However, two sources gave me some inspiration. One was *Access 2000 Developer's Handbook Volume 1: Desktop Edition* by Getz, Litwin, and Gilbert (Sybex). On page 680, to be precise, the book outlines the technique for drawing a rectangle surrounding an entire printed page using the Line method. More detailed still was an article by Dan Elliott in the October 1997 issue of *Smart Access* dealing with a number of issues concerning lines and formatting on reports. However, Dan's article was dealing with counting the number of records, the height of each record, and the value of that height in twips and didn't address the issue that I was primarily concerned with: How do you get a line to grow to at least the same height as an expanded text box?

The Line method draws any kind of straight line (vertical, horizontal, diagonal) using x and y coordinates to set the start and finish points. The Help file gives the following syntax:

```
object.Line [[Step](x1, y1)] -
  [Step](x2, y2)[, [color][, B[F]]]
```

The x1 coordinate provides the value from the left edge of the section for the start of the line, and the y1 coordinate gives the distance from the top of the section. So (0,0) would start in the top left corner of the report section. The second set of coordinates gives the end value for the line. For a vertical line, the x2 value would remain the same as the x1 value (if not the same, a sloping line is drawn), and the y2 value would mark the end of the line.

There are three properties to be set before the line is drawn. They are:

- DrawWidth
- ForeColor
- ScaleMode

These properties set the width of the line, the color of the line, and the scale unit used to measure the line. The first two are self-explanatory, but the third is a little less obvious. When using the Line method, different units of measurements can be chosen to indicate the start and finish coordinates for the line. The Access Help file provides the following settings for ScaleMode:

- Twips (Default)
- Points
- Pixels
- Characters (horizontal = 120 twips per unit; vertical = 240 twips per unit)

- Inches
- Millimeters
- Centimeters

On my installation, Access is set up (via the Windows Regional Settings) to European units. I chose centimeters for my ScaleMode because that's the setting for my on-screen rulers. This enabled me to approximately set the values for the x coordinates for my line by picking the position from the ruler on the screen in Design View.

My values for the three properties were set as follows:

```
Me.DrawWidth = 1
Me.ForeColor = 0
Me.ScaleMode = 7
```

I needed lines at various distances from the left across the width of the subreport. When in Design view, the lines weren't visible, but the distance from the left could be estimated by selecting each text box in turn (see [Figure 3](#)) then noting the approximate value from the left and right edges of each box. This gave me rough values for the x coordinates (both x1 and x2).

I wanted vertical lines from the top of the Detail section to the bottom. The lines started at the very top, and therefore the value for the y1 coordinate was easy to set at 0. The end value, y2, would determine the height of the vertical lines. Setting this to a numeric value meant that the lines were drawn at a fixed height.

I attempted to discover a value via coding that indicated the grown height of all the rows. After a few tries with a number of alternatives, like Detail.Height, I decided to use the Section property of the subreport as a value. I placed my code in the subreport's Detail On Print event. I wanted seven vertical lines, drawn between the fields I'd already spaced out, so I set the values as shown here:

```
Private Sub Detail_Print(Cancel As Integer, _
  PrintCount As Integer)

Me.DrawWidth = 1
Me.ForeColor = 0
Me.ScaleMode = 7

Me.Line (6.8, 0)-(6.8, _
  (Me.Section(acDetail).Height))
Me.Line (10, 0)-(10, _
  (Me.Section(acDetail).Height))
```



**Figure 3.** The coordinates for lines can be roughly calculated by selecting a text box and using the ruler.

```

Me.Line (11.4, 0)-(11.4, _
(Me.Section(acDetail).Height))
Me.Line (12, 0)-(12, _
(Me.Section(acDetail).Height))
Me.Line (13, 0)-(13, _
(Me.Section(acDetail).Height))
Me.Line (14.3, 0)-(14.3, _
(Me.Section(acDetail).Height))
Me.Line (16, 0)-(16, _
(Me.Section(acDetail).Height))

End sub

```

This gave me some continuous lines, but some lines were almost totally masked. I also had to adjust the position of the text boxes and the height of the Detail Section. For reasons not all that clear to me, the Detail Section height can cause a problem with only a very small

section of the vertical line appearing. I manually adjusted the height, switching between Design and Preview to check that the whole line was being displayed.

The text boxes can also be adjusted in width so that the text doesn't appear too close to the drawn lines (or the x coordinates could be adjusted). This gives a more pleasing design (see Figure 4) without the text butting closely up to the border/vertical line. The end of each vertical line needs to meet with the border for the subreport. To achieve this, the subreport Report Footer needed to be 0.05 cm high. The final touch was to add a horizontal line to separate the Report Header and the

*Continues on page 22*



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Date: 22/07/2000

Invoice: L1

Ref: Fundacja Warszawa

**Customer Details**

**Name:** Fundacja Warszawa  
**Address:** Ul. Glownej Kwatery 133  
Warszawa  
**Country:** Poland

**Student Name:** Miss Maria Strystrowska

**Student ID:** 3404

Course or Service	Start	End	Gross Fee	Weeks/Quantity	Disc. %	Nett Fee	Subtotal	Commission
Course A - General English	10/07/2000	04/08/2000	£102.00	4	20.00	£81.60	£326.40	£81.60
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\*Sundry  
1. Packed Lunch  
2. Pocket money

Nett Invoice		Commission
<b>Total</b>	£2,001.40	£263.60

Figure 4. The complete invoice with continuous vertical lines.

## Access E-mail Application...

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Also remember to set the Conditional Compilation Argument OutlookEnabled to a value of 0 in the Access Options panel (on the Advanced tab) if Outlook isn't loaded on your system. Doing this prevents the Outlook code from producing a compile error. If you're using Outlook, be sure to establish the reference for it in your database.

I hope you enjoy Access e-mail. It *will* work, and it

just might be the most talked about enhancement in your database! Let me know; I'm always either looking for cars or waiting for mail! ▲

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Keith Bombard is a contract programmer employed by Howard Systems International who specializes in large Access implementations. He's been developing Office-based solutions for multiple clients since 1993. Prior to that, Keith was a systems manager in the financial industry. He's currently on an extended assignment building three large Access databases for the State of Connecticut, Department of Environmental Protection. Keith.Bombard@PO.STATE.CT.US.

## Continuous Line Conundrum...

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invoice section. This could also be drawn using the Line method, but as the width of the line is fixed (there being no requirement for the line to grow), I used the Line tool on the Toolbox. I drew a horizontal line at the bottom of the Report Header.

### Other sections

This technique can be used to draw lines in other sections of the report, though the problem of sections growing isn't an issue in Report or Page Footers and Headers (as they have fixed heights). With Group Headers and Footers, exactly the same technique can be followed to make continuous lines or continuous boxes/borders around a selection of fields and/or labels. A box or border around the entire Group Header would require the B argument after the x and y coordinates, which causes the Line method to draw a box. The ScaleWidth property automatically provides the width of the report (and thus the width of the box), and then the height of the box is found using the Section property.

```
Private Sub GroupHeader0_Print _  
    (Cancel As Integer, PrintCount As Integer)  
  
Me.Line (0, 0)-(Me.ScaleWidth, _  
    Me.Section(acGroupLevel1Header).Height), , B  
  
End Sub
```

It's also possible to fill the rectangle (with the same color as the border) using the Line method's F argument.

With this technique, I had my vertical continuous lines separating the columns on my invoice. The vertical lines grew to the height of the detail section and had no gaps. The text within each column was positioned so that it didn't appear too close to the vertical lines. The advantages of this technique for drawing continuous vertical lines are that it's fairly straightforward to write

the code, it isn't necessary to calculate the number of rows that will be displayed, and (by setting the ScaleMode to centimeters or inches, or millimeters as appropriate) it's possible to work out the necessary distances for the x coordinates quickly and easily. ▲

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