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Printers, Fonts, and Documents

ALEC MULVEY

For many, the misunderstood relationship between printer drivers, fonts, and documents means trial and error with every document. But it doesn't have to be that way, as veteran Q&A consultant Alec Mulvey shows.

MANY people experience difficulty using fonts in Q&A for DOS. For some unknown reason, their documents and reports always print in Courier, or their columns are neatly aligned on the screen but go to pot when printed, or they're forever adjusting their Define Page screen settings and still getting unpredictable results.

The fact is, you probably *can* make use of the fonts in your modern printer, and you *can* align columns and adjust page margins for consistent output—but *not* using Q&A's default settings.

It helps to understand the rationale behind the settings you need to make to get the kind of output you need, so I'll show you how to use proportionally-spaced fonts in Write documents, Print Specs, Reports—in whatever method you use to print from Q&A.

Fonts in general

The fonts you can use in your Q&A documents depend on the fonts your printer supports, whether they're built into the printer, on font cartridges, or soft fonts downloaded to the printer.

Until you properly install and apply your fonts, Q&A will use your printer's *default* font, probably fixed-pitch Courier.

To succeed with fonts, you must set up Q&A properly—a process that includes the following steps:

- Installing the correct printer from the list of available printer drivers.

- Installing the correct font file for the printer.

- Using *absolute measurements* for page width and left and right margins.

- Using Q&A's *Real* tab characters option.

- Assigning the fonts to the document (at least a *Regular* or default font).

- Assigning and applying additional fonts if you want your output to appear in more than one font.

1. Installing a printer driver

Q&A supports hundreds of printers, including all the most popular ones up to 1995. You can install up to five (A through E) printers in Q&A, though you're actually setting up five different printer *drivers*. Printer installation is a combination of the following elements:

- Printer make and model.

- Paper size.

- Paper orientation (portrait or landscape for sheet-fed printers).

- Resolution (if supported) expressed in dpi (dots per inch) for laser and inkjet printers, or NLQ/Draft for dot matrix printers.

For example, printers A and B might be portrait and landscape drivers for the same printer. Though the allowance of five printers might seem generous, if you want a local printer, and a network printer, and each in both portrait and landscape orientation, you've already used up four of your five installable printers. If you then want to use two paper

Next Month in Savannah!

TOM MARCELLUS

WE'RE gearin' up here at *The Quick Answer* for the Q&A Masters Seminar on Friday, October 24 in Savannah, Georgia. For the third consecutive year, this day-long event (featuring the Q&A experts you read in *The Quick Answer*) preceeds the Annual National Q&A Users Group Bash. If you use Q&A for more than storing your favorite recipes, I urge you to attend both the Masters Seminar and the Bash. You'll enjoy a fun-filled, informative weekend with fellow Q&A enthusiasts, watch a terrific mix of expert presentations on the big screen, and get your Q&A questions answered during the workshops. For more information on the Bash, call Gale Platt at 561-482-5604. For details on the Masters Seminar, call 800-780-5474 or 301-424-1658.

If you've mastered the relationship between Q&A printer drivers, fonts, and document settings, you know what 90 percent of Q&A for DOS users don't. If you're in that majority, or you could stand a little brush-up, **Alec Mulvey** takes you back to basics.

Ever wonder what, besides more records, makes your Q&A database swell to unmanageable proportions? Why is it you can add 20 records to a database without the file size changing, then after the 21st, the size suddenly jumps another 65K? **John Dow** has the answers.

Jeff Nitka is on vacation this month. He returns next month along with his Program Spec column.

Oops!

In the May 1997 issue ("Forms Within Forms"), a production error dropped several lines from the top of page 3. Here's the missing text:

…the note will appear on the message line. To view lengthier notes, you'll just click on the Note field, and press F6 to expand it. You'll click on the down arrow button to scroll…

Be sure the RecordNumber field in the NOTES2 database is a number field. In Part 2 (June issue), the last five lines in the first column on page 9 (the NoteBar field's program) should read:

```
If @Left(NoteCode, @Len(Cust ID)) <> Cust ID
Then
{ If @Askuser("No Notes for this customer.","Want to add one?","")
Then goto NoteAdd else goto NoteBar }
Else
```

Quick Tip
Lock Your Database
(Before Somebody Else Does)

Q&A lets you lock a database to prevent others from changing the custom features you've designed into it. Even if you don't want to restrict access to anything, you should still lock the database. Here's why. If the database is secured, anyone with design rights can lock it. If it isn't secured, anyone at all can lock it. And once it's locked, nobody—not even Symantec—can tell you how to unlock it without the password. One client of mine had his database accidentally locked by an errant macro!

Backup the database before locking it. Then, select File / Design File / Customize Application / Lock Database, and enter the database name. (If it's secured, you'll need to enter a password with design rights.) At the Database Lock screen, type a password in the Password field, and write it down. Set *Should the database lock be enabled?* to Yes, then optionally set any lockable elements to No. (These override any Security Spec access rights.) Finally, press F10.

Having to enter your password and disable the lock before you can redesign something is a small price to pay compared to being locked out altogether.

Erika Yoxall, Hammer Data Systems, 330-527-4018

sizes, you have a problem.

Here's how you install a printer:

1. From the Main menu, select Utilities / Install Printer.

2. Select Printer A, B, C, D or E.

3. Select a printer port (usually LPT1 for a standalone PC, or LPT1, LPT2, and so forth, for a network printer). You can install several printers to print to the same port.

4. Choose the printer manufacturer from the list (for example, *HP* for Hewlett Packard).

5. Select the right combination of printer model, orientation, and paper size.

Letter (8.5 x 11-inches) and *Legal* (8.5 x 14-inches) are American paper sizes, whereas *A4* paper (8.69 x 11.69-inches) is the standard in the UK and Europe.

When you select a printer, Q&A might display a panel of information that includes the number of lines per page (often 64 or 66). This is the setting you should use for your page length when printing to this printer.

Usually, it isn't necessary to press F8 to specify *Special Printer Options.* If you do, however, the first of the two additional screens tells you the font file for the printer. If you know what you're doing, you might get away with using a non-recommended font file, but I don't advise it.

Here are a few notes about printer installation:

* If you have a Postscript printer, select *Apple Laserwriter* no matter the make or model.

• HP LaserJet 5 and 6 printers work well with the HP 4 driver.

• The information Q&A provides varies depending on the printer you're installing. In some cases, technical information on the printer might be required. For example, Q&A might tell you to configure the printer's dip switches a certain way. However, doing this can affect printing from applications other than Q&A.

• Q&A stores printer drivers in a file named QAPRINT.CFG in the main program files directory. If you can't find the printer model you want to install, check the date of this file—you might need to obtain a more up-to-date version from Symantec's customer service, its bulletin board, or one of its on-line services.

2. Installing a font file

Installing a font file makes it available to Q&A. These files are stored in the Q&A program files directory or a FONTS subdirectory. You can store font files locally or on the network. As with all program files, you can improve performance by having them available on the local PC.

Here are a few of the common font files:

HP Laserjet series II, III	HPLASERJ.FNT
HP Laserjet series 4 and later	HPLASER4.FNT
HP Deskjet 500	HPDJ500.FNT
Epson LQ series dot matrix	EPSONLQ.FNT
Epson Esc-P2 dot matrix	EPESCP2.FNT
Most 12-pin basic dot matrix	EPSONFX.FNT
Canon LBP-8 lasers	CANON8.FNT
Canon LBP-8 series III lasers	CAN8III.FNT
All Postscript Lasers	POST.FNT (regardless of model)

Some font files are interchangeable. For example either of the above HP LaserJet font files can be used for either Laserjet series III or series 4 printers.

If you can't find the right font file for your printer, check with Symantec Customer Service or one of Symantec's on-line services.

3. Using absolute measurements

When you install Q&A, the default document settings, regardless of the country or installed printers, are these:

```
Left margin: 10    Right margin: 68
Top margin: 6      Bottom margin: 6
Page width: 78     Page length: 66
```

These default settings treat the page as a sheet of graph paper with rows and columns, each character taking up one square. This analogy works well if you use only fixed-pitch (monospaced) fonts. Each character in a fixed-pitch font is the same width as every other character.

Remember this important rule: *Horizontal settings (left and right margins, and page width) give predictable results only when using fixed-pitch fonts.* Some examples of fixed-pitch fonts are Courier, Letter Gothic, Pica, Elite, and Line Printer.

Most fonts found on today's printers *aren't* fixed-pitch fonts—they're *proportionally-spaced* fonts. Examples of these are Times Roman, CG Times, Dutch, Univers, Helvetica, Swiss, and Souvenir.

If you use proportionally-spaced fonts, you must use what are called *absolute measurements* (inches or centimeters) for your *horizontal* settings. You can use either lines or absolute measurements for your vertical settings.

Don't expect Q&A for DOS to print TrueType fonts. These are soft fonts designed to be printed only by Windows programs. Examples of these are Times New Roman, Arial, and Wingdings. To print fonts that aren't built into your printer, you'll need to purchase a font cartridge or soft fonts. (See Roger Skidmore's article on using soft fonts in the March 1995 issue of *The Quick Answer.*)

Page width and left/right margin settings

It surprises many Q&A users to find out that the Define Page screen is *not* the place to specify paper size. Remember, you did that when you installed your printer

driver. In order to work out the appropriate settings for page width and margins, you need to know your printer's *unprintable region*. This is the band around the edge of the page where the printer can't print. When using absolute measurements (inches, for example) you need to take this unprintable region into account. (Your printer's manual will tell you what it is.)

In general, the following rules apply:

- Page width equals the actual paper width minus two times the unprintable region.

- Left margin equals the desired left margin minus the unprintable region.

- Right margin equals the desired right margin minus the unprintable region.

An HP LaserJet has an unprintable top and bottom region of .5-inch, and an unprintable left and right region of .25-inch. When using US letter paper, this means:

Page width = 8.5" - (2 x 0.25") = 8.0"
Left / right margins = 1" - 0.25" = 0.75"

For European A4 paper, it means:

Page width = 8.27" - (2 x 0.25") = 7.77"
Left / right margin = 1" - 0.25" = 0.75"

Note that the left and right margin settings are measured differently depending on which method you use. The default settings of 10 and 68, for example, are both measured from the *left* edge of the sheet of paper. When using absolute measurements, the left and right margins are measured from the respective edges of the paper. (All Windows word processors use this latter measurement system.)

Vertical dimensions

Specifying absolute measurements for vertical dimensions isn't strictly necessary. You can specify lines, using the formula of six lines to an inch. But either way you still have to take into account the printer's unprintable region. Using US Letter paper, for example, you can calculate your vertical measurements this way:

Page length = 11" - (2 x 0.5") = 10"
Top / bottom margins = 1" - 0.50" = 0.50"

A surprising side-effect occurs when using absolute measurements for page length: *Reducing the page length increases the line spacing*. (Remember that the paper dimensions are specified with the printer driver.) If you set a longer page length, Q&A reduces the line spacing, while a shorter page length increases the space between lines. I find that a page length of 10.5-inches looks best

for European A4 paper. The degree of line spacing that looks best can depend on the font you're using. Experiment to find your preferred setting.

The following table shows my suggested Define Page settings using an HP LaserJet with 1-inch margins all round:

	Letter	Legal	A4
Page Width	8.0"	8.0"	7.77"
Left margin	0.75"	0.75"	0.75"
Right margin	0.75"	0.75"	0.75"
Page Length (inches)	10.0"	13.0"	10.5"
Page Length (lines)	60	72	64
Top/bottom margins (inches)	0.50"	0.50"	0.50"
Top/bottom margins (lines)	3	3	3

4. Using Real tab characters

When aligning text in columns with proportionally-spaced fonts, using *Real tab characters* is essential. (Q&A 3.0 doesn't have real tab characters—it just inserts spaces.) Unfortunately, Q&A defaults to *not* using real tabs—you have to change it.

To turn on the Real tabs option, select Write / Utilities / Set Global Options / Set Editing Options. At the Editing Options screen, set *Use real tab characters* to Yes, and set *Show tabs on screen* to Yes. Then press F10 to save your changes.

Showing tabs on screen lets you readily see, in any document, whether your text is aligned because of real tab characters or just spaces.

When using proportionally-spaced fonts, remember the rule*: Never use spaces to align text*. Doing so might look fine on the screen, but the printed output will be a mess.

Existing documents

You might have documents containing aligned columns that you created when the Real tabs option was off. As long as the document uses a fixed-pitch font, the columns stay aligned when the document is printed. If, however, you apply a proportionally-spaced font to such a document, the columns won't align in the output. You'll have to manually delete the spaces between the columns in each affected document, and replace them with one or more Real tabs. An extra benefit of doing this is that if you move a tab stop, the whole column will move to it.

5. Assigning fonts

Q&A doesn't assign fonts to documents by default. Accordingly, it prints all text using the printer's default font, which is usually Courier.

You can assign up to nine fonts to any Write document—the default font (called the *Regular* font), and up to eight alternate fonts you can use throughout that document. Follow these steps to assign a Regular font to a Write document:

1. In Write, press Shift-F6 to display the Text Enhancements and Fonts menu.

2. Press *A* for Assign Fonts. This displays the Font Assignments screen.

3. Select the font file for your printer if one isn't already displayed, and press Enter move to the *Regular* font field. (This will be the document's default font.)

4. Press F6 to display a list of available fonts, highlight one, and press Enter to select it. If the font is scaleable, Q&A will prompt you to specify a point size (usually between 10 and 13 for regular body text).

5. Press F10 to return to the document screen.

Here are a few tips for assigning fonts:

- You can press Ctrl-F9 from the document screen to go directly to the Font Assignments screen.

- A *font* in Q&A includes a point size, and can include attributes such as bold, italic or bold/italic. Although you can apply these attributes using the Bold and Italic selections on the Text Enhancements and Fonts menu, you'll get better output if you use the actual enhanced version of the font rather than apply an enhancement to the non-enhanced version of it.

- Instead of pressing F6 to display the list of available fonts, you can press the Spacebar then press Enter from a blank field.

- Any Font Assignments screen can be made the default for all *new* documents by pressing F8. (See note below.)

- When at the Font Assignments screen for a particular document, the default Font Assignment screen (if any) can be copied to the current screen by pressing F5.

- For reports, you can assign fonts at the Column/Sort Spec, or in the Header/Footer sections of the Define Page screen.

- For Print Specs, you can assign fonts at the Fields Spec, or in the Header/Footer sections of the Define Page screen.

Important note: Do not set a default font for all documents if you're using Q&A 5.0. There's a bug in Q&A 5.0 that can crash your PC if you press F6 to expand a field at the Retrieve Spec for a mail merge document or mailing label. This only occurs if a default font has been specified in Write. There are several workarounds:

- Don't create new documents from scratch. Instead, use a "template" document (containing the fonts you use) to start a new document, then save the new document to a new filename.

- Create a macro that fills out the Font Assignments screen for each new document.

- Don't press F6 to expand a field at the Retrieve Spec of

a mail merge document or mailing label. Increase the field's size so you don't have to expand it, or type the retrieval parameter into another, larger field, then copy (F11) and paste (F12) the parameter into the desired field.

Follow these steps to assign additional fonts to a document:

1. From the document screen, press Shift-F6 for the Text Enhancements and Fonts menu.

2. Choose *A* for Assign Fonts. The Font Assignments screen appears.

3. Press Enter to move to the Font 1 field, then press F6 to display the list of available fonts.

4. Highlight a font on the list, and press Enter to select it.

5. If the font is scaleable, Q&A will prompt you to specify a point size.

6. Repeat steps 3 thorough 5 for each additional font you want to assign.

7. Press F10 when complete.

Don't assign more fonts than you need. Too many can affect performance.

Q&A stores a document's font assignments in the document file.

6. Applying Fonts

You must assign fonts to a document before you can apply them. Applying a font to a portion of text is a block operation done via the Text Enhancements menu. Follow these steps to apply an assigned font:

1. Place the cursor at one end of the text to be enhanced.

2. Press Shift-F6 to display the Text Enhancements and Fonts menu.

3. Under the default text attributes is a list of up to eight assigned fonts. If none are assigned, or you don't see the one you want, Press *A* for Assign Fonts, and assign the font as covered earlier.

4. Select the desired font, and press Enter. (You'll be returned to the document screen.)

5. Use any means to select the text to be enhanced (arrow keys, page down, and so on).

6. Press F10 to apply the font.
   Following are some notes on applying fonts.

- Q&A isn't WYSIWYG. Non-Regular fonts are indicated on-screen by different colors.

Producing Overall Averages

Is there a way to make a Q&A report calculate an overall average? Here's what my data looks like:

```
Total Sale      Quantity      Price Each
 $1000.00         100           $10.00
  2500.00         200            12.50
   300.00          50             6.00
----------      --------      ----------
 $3800.00         350           ?????
```

When I tell Q&A to calculate the average for the *Price Each* column, I get $9.50, which is the average based on *(10.00 + 12.50 + 6.00)/3.* In this case, though, the answer I need is $10.86, which is *3800.00/350.* I can use the formula *@total(total sale)/@total(quantity)* in a derived column, but then Q&A prints the result on every line, which I don't want. On the other hand, I can't use the *Print Totals Only* option, because I need to see the detail.

Erika Yoxall, Garrettsville, Ohio

Here are the Column Specs and Derived Columns that will provide the kind of overall average you're after.

```
Item: 10,AS    Price: 40    Quantity: 30,ST,T
Total Sale: 20,ST,T

Derived Columns:

Heading: Repeat Item
Formula: #10
Col. Spec: 100,I

Heading: Average
Formula: @Text(#100<>#10,@Total(#20,#10)/@Total(#30,#10))
Col. Spec: 90,F(N2)
```

These specs will produce a report like the following. (I've included some additional data to help illustrate.)

Item	Total Sale	Quantity	Price	Average
Gloves	$1000.00	100	$10.00	10.86
Gloves	$300.00	50	$6.00	
Gloves	$2500.00	200	$12.50	
	-----------	--------		
Total:	$3800.00	350		
Hats	$2500.00	200	$12.50	12.88
Hats	$797.50	55	$14.50	
Hats	$50.00	5	$10.00	
	-----------	--------		
Total:	$3347.50	260		
	======	========	======	=======
Total:	$7147.50	610		

Sorting the data on the Item field (10,AS) lets you use @Text as a comparison function to determine (1) when the Item changes and (2) perform the calculation when the Repeat Item column (#100) changes. The @Totals are also calculated on the Total Sale column when there's a change in the Item column [@Total(#20,#10)]. The average is printed just once, although on the first line of each "group" of items. Notice that the Average column (#90) is between the Item (#10) and Repeat Item (#100) columns. This ensures that Q&A performs the calculations in the right order.

Converting Text Dates to True Dates

I have a database with a text field that stores dates. The field is formatted with a *##/##/##* template that corresponds to a MM/DD/YY date format. I need to convert it to a true date field in Q&A 4.0's date format #7 (MM/DD/YY) so the dates will look the same as before but enable me to work with them as actual dates. What should I do?

T.M. Lady, New York

The following steps should convert the data properly. Be sure to backup the database before starting:

1. Remove the template from the field, but leave it as a text field. To do this, select File / Design a File / Customize a File / Field Template, clear the template, then resave the Spec.

2. Mass Update the database. Select File / Mass Update, and include all the records at the Retrieve Spec. At the Update Spec, press F6 to expand the field, type this program, then run the Mass Update:

```
#1 = @Right(#1,2) + "/" + @Left(#1,2) + "/" + @Mid(#1,3,2)
```

3. Go to the Format Spec (File / Design a File / Customize a File / Format Values), and change the field format from Text to Date. Press F10, and choose Date Format #7 at the Global Format Options screen.

This procedure will convert all *valid* dates to the MM/DD/YY display format you're after, and you'll have a "real" date field you can use to perform date calculations. Any date that was invalid (improperly entered) to begin with won't be properly converted. The following table illustrates how the dates might look when

you've completed the steps:

```
Text Field     Text Field     Text Field     Date Field
(Template)     (No Template)  (Mass Updated) (Format #7)
(MM/DD/YY)

02/05/95       020595         95/02/05       02/05/95
12/11/96       121196         96/12/11       12/11/96
14/05/96       140596         96/14/05       96/14/05
07/34/97       073497         97/07/34       97/07/34
45/67/89       456789         89/45/67       89/45/67
```

Notice that the last three entries in the final column contain invalid dates because one or more parts of the "dates" in the first column were invalid. (A Mass Update doesn't give Q&A the opportunity to convert them to a proper date format or warn you that they can't be reformatted to dates). For this reason, you should take steps to verify that the "dates" are all in proper MM/DD/YY order before running the conversion procedure.

Query Guide Can Be Useful

I'm at a new job where Q&A is used extensively but no one is available to help me learn it. What's the easiest way to find information in a database?
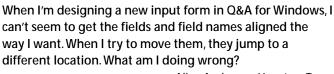
Tommy Nathan, Las Vegas, Nevada

As you work with Q&A, you'll learn to use the Retrieve Spec (Search/Update) to quickly find and display the database records you need. But to start with, you might find the Query Guide in Q&A for DOS 4.0 and 5.0 more intuitive. (Don't confuse the Query Guide with the Intelligent Assistant, which is quite different.) Q&A for Windows' "DAVE" (Do Anything Very Easily) feature is similar to the Q&A for DOS Query Guide.

The Query Guide offers an easy way to search a database, as well as perform other common tasks such as run reports. You can use the Query Guide without teaching it anything about your database. Or, you can perform a simple one-step procedure to teach it, making your searches even easier. Teaching creates indexes for the fields you'll most likely want to search. This, in turn, lets you to pick your search criteria from lists instead of having to type them. But since this increases the size of the database's index (.IDX) file, you might want to check with the boss to make sure it's okay to do this.

More on using Q&A 4.0's Query Guide can be found in the June 1991 (p.14) issue of *The Quick Answer,* and in the March and April 1993 issues. Q&A 5.0's Query Guide is essentially the same, if not identical, to Q&A 4.0's.

Align Objects on Q&A for Windows Forms

When I'm designing a new input form in Q&A for Windows, I can't seem to get the fields and field names aligned the way I want. When I try to move them, they jump to a different location. What am I doing wrong?

Alice Anderson, Houston, Texas

You probably have the *Snap to Grid* feature turned on, and the grid itself hidden, so Q&A is aligning your objects to a grid you can't see. When designing an input form in Q&A for Windows, you can position objects (fields, field labels, and so forth) by manipulating various alignment settings. The *Arrange* menu includes an *Align to Grid* command that aligns objects to a grid. To display the grid, pull down the *Format* menu and select *Rulers and Grid.* You can choose whether to display or hide the grid, whether you want objects to *Snap to Grid* (be aligned on the grid), and the spacing of the grid's dots.

You can also align objects relative to one another (such as aligning a group of fields vertically down the form). This not only makes the form look cleaner and more pleasing to the eye, but can affect its default tab order (the order in which Q&A moves the cursor from field to field). The commands on the *Arrange* menu will help you adjust the positions of the objects on the form. In most cases, one or more objects must be selected (highlighted) before these commands can be used.

Cure for "Spacey" Labels

When I create mailing labels in Q&A for Windows, I wind up with gaps between fields on the same line. And if a line contains just one field that's blank in the database record, the label prints with a blank line. Q&A for DOS took care of all this much better!

Michael Dearborne, St. Louis, Missouri

You'll need to modify your label design to incorporate Q&A for Windows' *Slide* feature. Try this with a sample label. Pull down the *Select* menu, then choose *Design Reports/Labels / New Label.* Choose the label type from the drop down list, add your fields, then click OK. Select the fields you want to "slide" to eliminate gaps or blank lines, then pull down the *Arrange* menu, and click *Slide Objects.* In the Slide Objects dialog box, you can select *Slide Left* and *Slide Up to Fill.* Do so, then print a few labels on some regular paper to see the effect.

Tracking Condo Usage

I need a database to track several condo units. It has to show the starting and ending rental dates, along with the number of nights each condo was rented. I'm not much for programming, so I need an easy solution.

Egan Moore, Oklahoma City, Oklahoma

Create a database with the following seven fields:

Field	Format	Field	Format
Condo No	Text	Counter field	Number
Start Date	Date	Search field	Keyword
End Date	Date		(multiline)
Number of nights	Number	Work field	Date

How Your Database Grows

JOHN DOW

Ever wonder what causes a Q&A database file to grow, shrink when you recover it, then grow again as soon as you do anything to it?

To understand what determines the size of your database files, there are a few things you should know. First, as you add records to a database, Q&A tries to find existing free space in the file for them. When the free space is exhausted, Q&A adds more in a fairly large increment. This way, Q&A doesn't have to increase the file size as frequently, and this helps performance. But the downside is that a database can be considerably larger than it needs to be.

Virtually any change you make to a .DTF (database) file requires space. A new report requires space. Editing records or Specs can require additional space if the modified items grow too large for the allocated space.

Database file size changes seem to follow these rules:

Rule 1: The file size doesn't increase until all free space in the file has been filled.

Rule 2: When more space is needed, Q&A adds an amount equal to 25% of the file size. Thus, a database with a file size of 34,816 bytes will suddenly grow by 34,816 / 4 = 8,704, to a new size of 43,520 bytes.

Rule 3: The minimum increment is 7,680 bytes no matter how small the database file. The maximum increment is 65,536 bytes no matter how large the file.

Field overhead

The second thing you should know is how the number of fields affects a database's file size. Every field produces two bytes of overhead for *every record and Spec*, even if the field isn't used in the Spec and is blank in all the records.

When you add a field, virtually nothing happens to any Spec or record. But when you do anything to *any* saved Spec, it grows by two bytes, even if the new field isn't used in the Spec. Thus, if you have 1,000 records and perform a mass update, the file will require another 2,000 bytes just to accommodate the one field, even though it might be empty in every record and not part of the Spec.

Suppose a database has 600 fields and 200 reports. Each report has a Retrieve and Sort Spec. The file size overhead due to this factor alone is (600 fields) x (200 reports) x (2 bytes per field) x (2 Specs per report) = 600, x 200 x 2 x 2 — or 480,000 bytes! If the database has 500 fields and 1,000 records, the overhead for the records is 500 x 1,000 x 2 — or a hefty 1M!

Free space

The third thing you should know is that each Spec and record are likely to contain a little free space. It's difficult to predict growth in file size as a result of adding just one field. However, if you add several fields, you'll surely see the file size jump.

Reusing space

The final thing to know is that Q&A doesn't always reuse space efficiently on-the-fly. For example, if a mass update causes some records to grow beyond their free space, Q&A seems to allocate space for an entire new copy of each of these records, leaving the old ones behind for a future database recovery to remove. Thus, a database can suddenly grow wildly beyond the predictions made by the number of fields described earlier.

I added 30 fields to a 3M database containing 1,520 records, then performed a null (empty Update Spec) mass update on it. I predicted that 30 fields added to each of the 1,520 records would require about 90,000 more bytes. I figured that some of that would fit into the free space available in each of the 1,520 records, but that some of the records would exceed their free space and cause Q&A to create new, larger versions of them.

However, after running the null mass update to bring each record up to the current generation (but adding no new data), the file size grew by 196,608 bytes. Much of that was temporary due to the larger versions of some of the records. A database recovery recouped much of it, returning the database to a mere 12,000 bytes net growth. But after I made a minor change to the database, it jumped the predicted 65,536 bytes, for a total increase of about 78,000 bytes. Here's a summary of the results:

Original size	3,044,864 bytes
Add fields, then null mass update	3,241,472 (grew by 196,608)
Database recovery	3,057,152 (shrunk by 184,320, net growth: 12,288)
Null redesign	3,122,688 (grew by 65,536)

Remember the overhead. And if you're concerned about database file size, keep the number of fields in your database from getting out of hand.

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Macros—The Missing Link, Part 3

ERIKA YOXALL

In this final installment on macros, you'll record and run a macro that prints a report. You'll then add a pause command to the macro so you can type in variable information at print time.

You've had two months to get acquainted with macros. Hopefully, by now, they're not so scary anymore! In this final installment you'll use the same sample database you used in Parts 1 and 2 (ANSMACH.DTF) and create a macro that prints out your messages in report form. Then, you'll open the macro file in Write, and add a command to the macro to make it pause for you to enter a date range (of messages received) before it prints the report.

Start by loading your test macro file:

1. Go to the Main menu.

2. Press Shift-F2 to display the Macro menu.

3. Select Get Macros.

4. Type the path to your test macro file, such as C:\QA\MACTEST\QAMACRO.ASC, and press Enter.

To give the report you're about to create something to print, add a few dummy records to ANSMACH.DTF, including a few with today's date.

Create the report

Now let's set up a simple ANSMACH.DTF report for the macro you'll create later to print.

1. Select Report from the Main menu.

2. Select Design/Redesign a Report.

3. Enter the path to ANSMACH.DTF at the filename prompt.

4. Name your new report *Messages*.

5. Leave the Retrieve Spec blank, and press F10.

6. Fill out the Column/Sort Spec as follows:

```
Message Date: 1,AS
Name:  2
Message: 3,H(Message)
```

7. Press F10 to continue.

8. Set any Define Page or Print Options you need. Be sure to set *Print Preview* to No.

9. Press F10 to save the report, and choose Yes to have Q&A print it. Your Messages report should look something like this:

```
Message Date      Name                         Message
------------  --------------  ------------------------------------
07-22-1997    Bob Jones       Can you get me the sales figures for
                              the last quarter? Thanks!

07-31-1997    Michael Jordan  I need some pointers on my jump shot.
                              When are you free?

08-06-1997    Erika Yoxall    Call me when you get back. I have the
                              meeting notes you requested.
```

Record the Print Messages macro

When you have the Messages report in good shape, return to the Main menu and create your new macro:

1. Press Shift-F2 to display the Macro menu.

2. Choose Define Macro.

3. A message will appear at the bottom of the screen asking you to assign a macro identifier to this macro. Press Alt-R. (A flashing square will appear at the lower right corner of the screen to indicate that the recorder is running. Any keys you now press will be recorded in the Alt-R macro.)

4. Choose Report from the Main menu by pressing *R*. (Press *R* then *Enter* if your Q&A menus aren't set for Automatic Execution.)

5. Choose *Print a Report* from the Report Menu by pressing *P*. (Press *P* then *Enter* if your menus aren't set for Automatic Execution.)

6. At the filename prompt, press Home, type the path to ANSMACH.DTF (C:\QA\MACTEST\ANSMACH for example), then press Enter.

7. Type *Messages* at the Enter Name prompt. (When choosing a report or a saved Spec in a macro, always type out the name rather than using the arrow keys to make a selection.) Press Enter.

8. Press *Y* to make temporary changes to the report. (Press *Y* then *Enter* if your menus aren't set for Automatic Execution.)

9. Press F10 three times to print the report. Q&A will return you to the Report menu after printing the report.

10. Press Esc to return to the Main menu.

11. Press Shift-F2 to display the Macro menu.

12. The Macro Name field will show the Alt-R identifier you assigned. Type a recognizable name over it (for example, *Print Messages*). Leave Show Screen set to Yes, leave the End with Menu line blank, and press F10.

13. Q&A will ask you if you want to save this macro. Make sure that the macro filename Q&A proposes is your test macro file, then press Enter.

14. Reload the macro file by performing the steps at the beginning of this article.

To test your new macro, return to the Main menu and press Alt-R. Q&A should print your *Messages* report.

Pausing the macro during playback

The Messages report and the Print Messages macro are designed to be flexible. You designed the Messages report with a blank Retrieve Spec so that at print time you can specify which messages to include. Adding a wait command to a macro tells Q&A when to pause so that you can enter variable information at a prompt or in a Spec. In this case, you'll have the macro pause at the Retrieve Spec for the Messages report so you can specify a date range of messages to print.

Follow these steps to edit the Print Messages macro:

1. Go to the Q&A Main menu.

2. Select Write, then Get.

3. Type the path to your test macro file, such as C:\QA\MACTEST\QAMACRO.ASC, and press Enter.

4. Select ASCII. This option might not appear if ASCII is your default document import type specified at the Editing Options screen (Write / Utilities / Set Global Options / Set Editing Options.) The macro should look like this:

```
<begdef><altr><name>"Print<sp>Messages"<vidon>RP<home>
C:\QA\MACTEST\ANSMACH<enter>MESSAGES<enter>Y<f10><f10>
<f10><esc><enddef>
```

5. To add the wait command, place your cursor after the Y. Make sure you're in Insert mode, and type *<wait><enter>*. The *<wait>* tells Q&A to pause after the macro "presses" Y to make temporary changes. The *<enter>* tells Q&A which key you'll press to resume the macro. The Enter key is the default, but you can specify any key. Your macro should now look like this:

```
<begdef><altr><name>"Print<sp>Messages"<vidon>RP<home>
C:\QA\MACTEST\ANSMACH<enter>MESSAGES<enter>Y<wait><enter>
```

```
<f10><f10><f10><esc><enddef>
```

6. Resave the macro file by pressing Ctrl-F8, then Enter. Escape to the Main menu, and reload your macro file.

7. Press Alt-R to try your macro again. This time, it should pause at the Messages report Retrieve Spec with the cursor in the Date field. A message will appear at the bottom of the screen telling you to press Enter to resume macro playback.

8. Press Ctrl-F5 to insert today's date, then press Enter. The macro will resume, and print the report with today's messages only.

Notes on using the Wait command

In this example we added the wait command to the macro in Write. To add a wait command to a macro while recording it, press Alt-F2 at the point you want the macro to pause, type any keystrokes, navigate any screens, or select any commands (these won't be recorded in the macro), then press Alt-F2 again to resume recording.

When a running macro is paused, you can enter text, navigate your screens, or make selections with the following two exceptions:

- If you press the key that tells Q&A to resume macro playback, the macro will of course resume.

- If you press the Esc key, you'll cancel the macro.

This tutorial series only scratched the surface of what you can accomplish with macros. You can use them to automate almost any repetitive task, reducing the time and effort it takes to perform even complex procedures to one or two keystrokes. For more information on macros, check out that section in *the Q&A Application Programming Tools Manual*. Past issues of *The Quick Answer* also contain lots of interesting macro tricks and techniques.

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Letters

Erika Yoxall rightly points out that you can't record a macro that exits Q&A (July 1997, page 11). Here's a macro created in Write that I use to exit Q&A:

```
<begdef><altx><name>"Quit<sp>to<sp>DOS"<vidoff>
<esc><esc><esc><esc><esc><esc><esc>x<enter><enddef>
```

When I press Alt-X from anywhere in Q&A, the macro escapes to the Main menu where it presses "X" to exit. Any unsaved work will cause the macro to fail.

Roger Skidmore, Isle of Wight, UK

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❑ **Pushbutton Multi-Label-Maker** – Quickly print (on-the-fly) any quantity of shipping labels for the current customer, invoice, sales order, or other record. Optionally print on the labels a custom line of text such as *Ship via Fed-X*, or a variable line of text such as Box *1 of 3*, Box *2 of 3*, etc. Works in Update or Add Data mode, whether or not the record is saved. Prompts for quantity of labels to print. You can modify the programming to work in any database that contains addresses. As featured in the January 1997 *Quick Answer*. **Q&A 5.0, $39.**

* Design locked on indicated databases.

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1. I'm ordering _____ (quantity) databases

2. Total order value before discount .... $_____

3. Multiply *Line 1* (quantity) x **$3** .... $_____

4. Subtract *Line 3* from *Line 2* .... $_____

5. Add $1.50 *per database* for S&H .... $_____

6. **TOTAL AMOUNT REMITTED** .... $_____

Visa, MasterCard, American Express, Checks accepted

Check off the databases you want.
Fax a photocopy of this page to 301-424-1658
or mail it to Marble Publications, Inc.,
PO Box 9034, Gaithersburg, MD 20898-9034
with your remittance.

Name_____

Address_____

City_____State_____Zip_____

Card No_____Exp_____

Fonts & Docs . . . *continued from page 5*

- When the cursor is on text in a non-Regular font, the font's abbreviation is shown on the status line at the bottom of the screen.

- You can't use Line Draw with proportionally-spaced fonts. Line Draw can be used only in paragraphs in fixed-pitch fonts such as Courier. So, you *can* have a section of your document in Courier and use Line Draw in that section. You can also draw horizontal lines above and below proportionally-spaced text by putting them in Courier. You can't, however, use Line Draw to draw a box *around* proportionally-spaced text.

Conclusion

Don't give up on Q&A just because you're tired of seeing your documents and reports in boring, old-fashioned Courier. With Q&A set up correctly, you can take advantage of the smart, scaleable fonts available in today's printers.

Alec Mulvey owns Keyword Consultancy and Training in Ascot, near London, England. amulvey@compuserve.com

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@Help . . . *continued from page 7*

At the Program Spec (File / Design a File / Program a File / Program Form), type the following programs into the fields. (Press F6 if you need to expand the field):

```
Condo No: #5
Start date: >#10: #40=#10
End date: #20
Nights used: <#30: #30=#20-#10; #35=#30; GOTO #35

Counter field: <#35: IF #35 > 1 THEN {#35=#35-1;
#80=#20-#35; #40=#40+"; "+ @RIGHT(#80,5)+"/"+
@MID(#80,3,2); GOTO #35} ELSE GOTO #80

Search field #40
Work field: <#80: if #80="" then #80=#20
```

Add a new record to the database for each reservation (rental). Enter the condo number, then enter the rental start and end dates. The programming calculates the number of nights between the two dates, and fills the Search field with the actual rental dates.

The Nights used field (#30) calculates the number of nights, and places that number in the Counter field (#35) as a starting value. The Counter field's program performs a "loop," reducing the number of nights by one as it adds each rented date to the Search field. When the Counter field reaches 1, the loop ends.

At this point the Keyword Search field (#40) contains the dates the condo will be occupied for this rental. The ending date isn't included. (I assume renters check out during the day, making the unit available that night.)

To find out if a particular condo is reserved on a date, go to the Retrieve Spec, type the unit number in the Condo No field, and type the date in the Search field in a MM/DD/YY format. (For example, type *09/13/97* for September 13, 1997.) Press F10, and Q&A will display any record containing that condo number and date. (Be sure to type the search date with the slashes and any leading zero for the month and day.)

Although this solution might not provide everything you need, it gives you an easy way to track usage, and find out if a condo is reserved on a particular date.

T.J. Shuflin is a forensic chemist and crime lab director in Alexandria, Louisiana. He served as the National Q&A User Group's first president in 1991-92, and remains active by maintaining the group's Web site at http://www.qaug.com.