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Be Colorful!

DAVID E. DVORIN

Q&A 5.0 extends your database color options by an order of magnitude. But do you know how to use color effectively?

Q&A 4.0 for DOS has limited database color options. With a choice of eight color palettes for the background, free text, field, and label colors—some of them rather ghastly combinations—only two or three of them are really suitable

Q&A 5.0 for DOS, on the other hand, not only gives you more palette possibilities, it lets you set and change field colors on-the-fly with simple programming statements. In this article, I'll show you how to change your database colors via both the Change Palette screen and programming, and discuss sensible color usage.

Changing colors via menus

The menu path to Q&A 5.0's Change Palette screen is the same as Q&A 4.0's—File / Design / Customize (enter the name of the database) / Change Palette.

What you see at the Change Palette screen, though, is nothing like 4.0's. The screen is called *Color Settings*, and the F6 and F8 keys have altogether new functions. You use the usual cursor navigation keys to move from field to field. Pressing F6 opens a dialog box to change the selected field's text and background colors, while F8 displays a menu for global color options that apply to the entire form.

Changing a field's color combination

To change a field's text and background colors (but not its label), move to the field and press F6. A dialog box appears showing the field name, the field's current color combination, and an example of what the combination looks like. Move to the Text Color setting, and press Alt-F7 for a list of color choices. Use your Arrow keys to select the color and to choose whether you want the Light (Yes) or Dark (No) complement.

Choosing the field's background color works the same way, except that there's no light or dark choice. All background color choices are dark.

Whichever colors you choose, an example of how the combination looks on the form appears at the bottom of the dialog box.

Changing global color settings

Press F8 from anywhere on the Color Selection screen to change colors associated with the form's Background (including free text), Field Labels, the Selected Field, All Fields, or to reset the palette to the "Q&A Standard" blue color scheme.

When you change a form's background and free text colors using the Background Text option, keep in mind that the entire background of the form and all free text is recolored accordingly. There's no option to change the background color

A Database Is No Place for a Rainbow

Q&A makes changing colors so easy that it's easy to go overboard with them. Stick to a small number of colors on a form. Too many colors is just asking for confusion.

Use Q&A's own menu system as a guide. Q&A's menus, for the most part, are variations of just two basic colors: white/gray/black and blue/turquoise. Use additional colors when you want to draw attention to something. For example, red, orange, and yellow are good for warning messages in message fields and to flag fields whose contents warrant immediate attention.

Do It (In Moderation) With Color

TOM MARCELLUS, EDITOR

MY first look at a Technicolor Q&A database was a memorable experience. Probably to show off Q&A 5.0's exciting new color capabilities, the German developers bundled it with an assortment of garishly-hued sample forms. Since then I've squinted at more god-awful color combinations in Q&A databases than you can imagine. (Please keep sending them, though.) As **David Dvorin** helpfully points out, a database is no place for a rainbow. You can color your forms and fields—Q&A 5.0 makes it easy, as Dave shows—without making those who use them feel dizzy. A little color goes a long way. Sparingly, and in the right combinations, it makes your forms eye-pleasing as well as easier to fill and navigate.

When I first toyed with **Diane Beisel**'s area-calculating database, I thought what a nifty way to find total square footage when you have two or more sets of dimensions. When I discovered it could subtract negative dimensions as well, I was even more impressed. The database lets you type in up to five sets of dimensions in an intuitive format such as *10x30+12x12-7x4*. Your local property tax assessor would be tickled. So might you if you're into property management or real estate.

Last January we showed you how to make any database store a history of changes to sensitive fields so you can see the previous values and when they were updated. **Bill Halpern** takes field protection a step further, with schemes that prevent people from editing "sacred" fields after they've been filled, and even protect whole records from changes once they've been "sealed" by a supervisor. If read-only fields aren't your answer, and you can't afford the time it would take @XLookups to compare fields in the record on disk with those onscreen, Bill's approach might be just what you need. **QA**

Quick Tip

Copying Shared Databases

When you use File / Copy / Copy design only to copy a shared database whose Sharing Mode is set to *Allow*, Q&A for DOS sets the Sharing Mode in the new copy to *Automatic*. It's important to keep this in mind because on some networks—Lantastic, in my experience— Sharing Mode must be set to Allow (not Automatic) for the database to be shared. In contrast, my Q&A for DOS databases running on a Windows 95 network can be shared with Sharing Mode left at Automatic. **QA**

Mike Bell, Gaithersburg, Maryland

Be Colorful!

Continued from page 1

of specific fields or different parts of the form.

Selected field refers to the field the cursor is in during Add Data and Search/Update operations. You'll probably want to choose a unique selected field color scheme to make it easy to spot the current field (where the cursor is) during data entry.

All Fields refers to the information blank portions of all the fields on the form (what's in them as opposed to their labels).

If your new color scheme is an eyesore, you can press F8 and select *Q&A Standard* to revert all your custom color settings to the familiar blue, white, and turquoise. Be careful, though, as Q&A gives no warning. An accidental keystroke here causes you to lose all your unsaved color changes.

Keep in mind that an individual field is affected both by the F8 key (global color changes) and the F6 key (the current field only). One key doesn't have precedence over the other. Whichever one is used last is the one that supersedes previous settings.

Get with the program

In addition to changing colors via the Color Selection screen, Q&A 5.0 includes a new programming command—@Color— for changing field text and background colors on-the-fly. @Color's syntax looks like this:

```
@Color(Field ID, Text Color, Background Color)
```

Field ID identifies the field whose colors you want to change—it can be a Program Spec Field ID number or a field name. The second parameter, *Text Color,* is the color (from 0 to 15) you want to apply to the field's entry (the text). *Background Color* (from 0 to 7) sets the color of the field's background on which the text appears.

The @Color command affects just the information blank portion of the field, and the color change is only temporary. Once you exit the record, the field's color scheme reverts to that specified at the Color Setting screen. In other words, you can't save a field's changed color with the record.

Table 1 shows the valid color values for @Color's Text and Background color parameters.

Table 1. Colors you can assign with the @Color command. You have seven choices for the background color, and 15 for the text color.

Background		Text (in addition to those at left)	
Value	Color	Value	Color
0	Black	8	Gray
1	Blue	9	Light Blue
2	Green	10	Bright Green
3	Turquoise	11	Light Turquoise
4	Red	12	Bright Red
5	Purple	13	Light Purple
6	Yellow	14	Light Yellow
7	White (light gray)	15	Pure White

Create Your Own Color Database

I created a simple database (COLOR.DTF) to display a variety of field color combinations. You can, too. **Figure 1** shows the design screen.


```
<AA                                                              >
                COLOR - by David E. Dvorin / Phoenix Solutions

Example #                              Color and Function
     1        <AB
     2        <AC
     3        <AD
     4        <AE
     5        <AF
     6        <AG
     7        <AH
     8        <AI
     9        <AJ



         1....T....1....T....1....2....T....3....T....4....T....5....T....6....T....7....T....8
COLOR                                       1 % 1   Line 1 of Page 1 of 1

Esc-Exit            F1-Help              F8-Options          F10-Continue
```

Figure 1. COLOR.DTF's form design.

Make fields AA through AI read-only. At the Program Spec, number the fields #1 through #9. Make field #9 the On-Record-Entry field (press F8 and type 9 on the On-entry line), and add the following program to it:

```
#9:
@Color(#1, 8, 0); #1 = " Dark Black / Lite Black
   = @Color(#1, 8, 0)";
@Color(#2, 9, 1); #2 = " Dark Blue / Lite Blue
   = @Color(#2, 9, 1)";
@Color(#3,10, 2); #3 = " Dark Green / Lite Green
   = @Color(#3,10, 2)";
@Color(#4,11, 3); #4 = " Dark Turquoise / Lite
Turquoise
   = @Color(#4,11, 3)";
@Color(#5,12, 4); #5 = " Dark Red / Lite Red
   = @Color(#5,12, 4)";
@Color(#6,13, 5); #6 = " Dark Purple / Lite Purple
   = @Color(#6,13, 5)";
@Color(#7,14, 6); #7 = " Dark Yellow / Lite Yellow
   = @Color(#7,14, 6)";
@Color(#8,15, 7); #8 = " Dark White / Lite White
   = @Color(#8,15, 7)";

#9 = "From `Color Settings' screen"
```

Save the program, add a record to the database, and the cursor moves to the last field (because all the other fields are read-only). Each field shows a different color combination along with the @Color command that produced it.

The text color follows the background color. Text colors are simply lighter shades of the background colors.

Here are a few sample @Color commands, and the color combinations they represent for text and background:

```
@Color(#1, 8, 0) = Black background, Gray text
@Color(#2, 9, 1) = Blue
@Color(#3,10, 2) = Green
@Color(#4,11, 3) = Turquoise
@Color(#5,12, 4) = Red
@Color(#6,13, 5) = Purple
@Color(#7,14, 6) = Yellow
@Color(#8,15, 7) = Gray background, White text
```

You can create any color combination you want. The following example displays turquoise text on a gray background:

```
@Color(#100, 15, 3)
```

For @Color's field parameter, you can specify the field name instead of the field ID. Or, you can use an expression that evaluates to a valid field name or Field ID, like this:

```
@Color("Price", 8, 6)
@Color("Amount" + @Str(Number), 10, 8)
```

The color parameters can be expressions that evaluate to valid color numbers. Here's an example where two expressions are employed to calculate an integer between 0 and 7 for the background color, and another integer between 0 and 15 for the text color for a field named Total:

```
@Color("Total", @Int(@Int(@Time)/96),
                @Int(@Int(@Time)/206))
```

Using color

You can use color options to accommodate a variety of scenarios. Here are a couple of examples.

In form design—focus on data entry fields

Color is an effective way to differentiate between read-only fields and those requiring data entry. For example, you might have a form where your read-only fields match the form's background and background text colors, and the data entry fields have their own consistent color scheme. Such a form would draw attention to the data entry fields.

In programming—color fields conditionally

Color is also an effective way to draw attention to a field that meets (or doesn't meet) some condition you specify. Suppose you have an inventory control application. When the quantity of the item in the current record falls below a preset threshold value, you want the InStock field to turn red. All it takes is a simple program like this:

```
< #100:
If InStock <= @Lookup("Threshold", 1)
   then @Color("InStock", 15, 4)
```

Another trick is to make certain field text disappear then reappear. You do this by making the field's text color the

Use "Null" Fields to Create Color Areas

Unfortunately, Q&A's new color capabilities don't let you set different colors for sections of a form or individual blocks of background text. These must be a single color combination. However, you can work around this limitation to an extent by using read-only fields and programming.

For example, here's how to change the title (the first field) on COLOR.DTF's form so it's color combination differs from the surrounding form's background and free text colors:

1. Add a labelless field to the database where you want the form title to appear. (In Figure 1 its the first field on the form.)

2. Format the field T,JC (text, justified center) to center its text.

3. Make the field read-only.

4. Go to the Color Settings screen, and set the color combination you want for the field.

5. Go to the Field Names Spec, and name the field *Title*.

6. Create an entry in COLORS.DTF's Lookup Table. In the Key column, type *Title*, and type the title text in the adjacent column 1.

7. Create an On-Record-Entry program like the following (or append it to an existing On-Record-Entry program):

   ```
   Title = @Lookup("Title", 1)
   ```

To change the title, simply edit the entry in column 1 of the Lookup Table.

same as its background color. Using the inventory control concept, not only can you make the InStock field turn red if the quantity falls below a threshold value, you can have a warning message appear in another field to notify the user of the situation.

To implement such a scheme, you'd use a read-only field

Sorry, Bub, That Field Is Sacred

BILL HALPERN

It takes just a few minutes to protect sensitive fields from inadvertent or deliberate changes. Here's how.

IN the January 1997 *The Quick Answer*, A.C. Tynes showed how to monitor and maintain a history of changes to sensitive database fields. On the same topic but in a different vein, I'd like to show you how to keep someone from changing sensitive fields when viewing records in Search/Update mode, while allowing other fields to be edited and all data to remain open to view.

In a sales order database, for example, you might want to prevent the quantity of an ordered item from being changed, while leaving the ship-to information open to change. In a database that tracks project approvals, you might want to protect all fields against changes once the record is approved by the supervisor.

Although the technique for controlling which fields can and can't be changed is essentially the same for all versions of Q&A, you can add some bells and whistles if you're using Q&A 5.0 for DOS.

How the method works

Using my technique, you create a *mirror* (duplicate) of the data entry field. Then, during Search/Update, you have Q&A test to see if the data entry field matches the mirror field. If it does, fine; you instruct Q&A to do nothing. But if the two fields don't match, you replace the changed value in the data entry field with the value in the mirror field. Using Q&A 5.0's user message features, you can even inform people as to whether the current record is approved or locked, and advise them that any changes they make won't be saved with the record.

You'll need a mirror field for each data entry field you want to protect. Place your mirror fields as a group on the last otherwise empty page of the form, and make them read-only. This way, users won't be able to see or change them. Format the mirror fields the same as the fields they're mirroring—that is, a field that mirrors a date field should be formatted for dates, a field that mirrors a number field should be formatted for numbers, and so forth.

Try it out

First, let's take an example where certain fields can't be changed once they've been filled. Let's suppose these "sacred" fields are Quantity (#10) and Price (#20). Their mirror fields are therefore Mirror Qty (#510) and Mirror Price (#520).

At the Program Spec, enter the following program in the Quantity field:

```
> #10:

Rem ("Set mirror field when field #10 is filled");

If #10 <> "" and #510 = "" Then
{ #510 = #10; Cnext };


Rem ("Tell user that changes aren't allowed, and
     reset to mirror value if field changed");

If #510 <> "" and #10 <> #510 Then
{ @Msgbox("Record Is locked.","Changes to field will be,"
  "ignored and reset.");
#10 = #510; Cnext };
```

You'd create a similar program for each of the other data entry fields you want to protect from changes.

How the program works

Here's what the program does. During data entry (in Add Data or Search/Update mode) when the user Tabs out of the protected field, the program checks to see if it contains anything and if its mirror field is empty (*If # 10 <> "" and #510 = ""*). If so, it signifies that the entry just made is the field's original entry, and the program fills the mirror field (*#510 = #10*) with the same value before moving on to the next field.

Don't Waste Space for Your Mirror Fields

Q&A 4.0 and 5.0 automatically expand fields to accommodate entries longer than the visible field. Since your mirror fields will be out of sight, there's no point in wasting space with lengthy field names or large information blanks. If your data entry fields are appropriately labeled and spaced to show, for example, *First Name, Last Name, Address, City*, and so forth, you can name and arrange your mirror fields like this:

```
MFN<   MLN<   MAD<   MCT<   >
```

Here, the abbreviated field labels identify their data entry counterparts, and just one space following the beginning field sign ("<") tells Q&A it's a field.

If, on the other hand, the mirror field is filled (*If #510 <> ""*) and the Quantity has been changed so the two fields don't match (*#10 <> #510*), a message box appears informing the user that the record is locked, and that changes to the field will be ignored and reset. When the user presses Enter to put the message box away, the program copies the entry in the mirror field to the protected field (*#10 = #510*) so they once again match.

Options

An optional technique involves having your program check another field—Supervisory Approval (#111), for example—to control when the record lock is applied. This way, you can protect all the fields, even empty ones. In this case, you'd change the programming to something like this:

```
> #10:

Rem ("Sets mirror field on entry of data in field #10
    if record has not yet been approved");

If #111 = "" and #510 <> #10 Then
{ #510 = #10; Cnext };

Rem ("Tell user that changes aren't allowed and reset
    to mirror values");

If #111 <> "" and #10 <> #510 Then
{ @MsgBox("Record is locked.","Changes to field",
        "will be ignored and reset.");
#10 = #510; Cnext }
```

Using this approach, you could also add a statement such as the following to the first field in the database:

```
< #1:

If #111 <> "" Then
@Msgbox("This record has been approved.",
        "No changes can be made.",
        "You can only view the record.");
```

This tells the user at the outset (when displaying an approved record) that it's already approved (fixed) and that any changes to it won't be saved.

With this easy approach to protecting fields—you can use it in any database—you can do in Q&A in a few minutes what in other programmable databases might take hours. **QA**

Bill Halpern is executive vice president of Professional Computer Technology Associates in Newtown, Pennsylvania. Bill has been designing and installing Q&A business applications for the past nine years. 215-598-8440, 71023.356@compuserve.com

Is Your Field Protection Scheme Enough?

This article covers two approaches to protecting your data from inadvertent or inappropriate changes. Neither technique, however, is foolproof. The programming depends on the user pressing Tab or Enter to leave the field in the usual manner after entering the information. If the Up Arrow key is used to move to a field in the previous row, or the Left Arrow key (or Shift-Tab) is used to move to the previous field, any changes made will remain since the program can only execute on-field exit (when the cursor moves out of the field to the right or down).

If this might cause a problem, you can make your field protection scheme more robust by changing the mirror test and reset to occur on-record-exit as opposed to on-field-exit. To do this, you could use a program like the following in one of the mirror fields:

```
#112:

If #510 <> "" and #10 <> #510 Then #10 = #510;
If #520 <> "" and #20 <> #520 Then #20 = #520;
Etc.
```

You make this the record's on-exit field by pressing F8 in the Program Spec, and setting the *On exit field id* to 112 (without the pound sign).

This way, when you press F10 to save (or Shift-F10 to save and exit) the record, the protected fields are simply reset to their mirror field values. It affords better protection, but at the cost of slowing things down a bit since the program executes (performing the checking and updating) if you press F10 or F9 to move from record to record.

Of course, with any of these techniques, a destructive person could run a Mass Update to modify the data and mirror fields at the same time. But you can protect against this by securing the database, and preventing anyone from Mass Updating it without first entering an authorized password.

Quick Tip   A Fix for 5.0's Buggy Date Formats   5.0

Bob Buckland has created a patch that changes Q&A 5.0's buggy date formats 7, 9, and 10 to the formats as they are in Q&A 4.0. We tested the patch on both networked and standalone copies of Q&A 5.0, and it works beautifully. For more information, e-mail Bob at 75214.226@compuserve.com. **QA**

Gordon Meigs, PCTA, Newtown, Pennsylvania

@Help

EDITED BY T.J. SHUFLIN

Fix Windows 95 Copy/Paste Problem

When I use Windows 95's Copy and Paste features with Q&A 4.0 for DOS, I wind up with scrambled and missing characters in the pasted text. If I could get this to work correctly I could save a lot of time copying and pasting programming statements. Is there anything I can do about it?
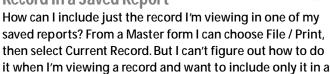
I.M. Beateaux, Metairie, Louisiana

Yes. A simple modification to your Q&A Properties sheet allows you to cleanly paste copied text into a Q&A 4.0 or 5.0 for DOS window. Here's what you do. Start Q&A, and put it in a window. (To switch from full screen to window mode, press Alt-Enter.) Click on the Properties icon on the Q&A window's toolbar. (It's the one with a hand over a sheet of paper). Open the Misc tab, and clear the *Fast Pasting* check box. Click Apply, then click OK. You should now be able to successfully use the Windows' Copy and Paste when running Q&A in a window.

Some DOS programs—WordPerfect, for example—allow fast pasting. Q&A for DOS doesn't. Moreover, Q&A 5.0 has its own Clipboard. To use it, press F11 to copy selected text. Navigate to the screen where you want to paste it, and press F12.

Print Just the Current Record in a Saved Report

How can I include just the record I'm viewing in one of my saved reports? From a Master form I can choose File / Print, then select Current Record. But I can't figure out how to do it when I'm viewing a record and want to include only it in a saved report. Can I create a script to do it?

K. Hansen, Lansing, Michigan

I don't know of a way to automate printing the currently viewed record in a Saved Report. The Scripting Assistant won't copy data to Windows' Clipboard or paste from it, and I couldn't find a way to save information from the current record for later use.

You can use a manual shortcut to accomplish the task. It requires a field that uniquely identifies each record in the database—a record number generated by @Number, an invoice number, a customer ID, or the like. Here's what you do:

1. Display the pertinent record.

2. Select the unique value by clicking in the field, then double-clicking to highlight it.

3. Press Ctrl-C to copy it to the Clipboard.

4. Click on the Reports icon (or press Ctrl-Y) to switch to the Reports / Labels screen.

5. Select your Saved Report and click OK.

6. At the Report Layout screen, press Ctrl-R to open the Attach Retrieve Spec dialog box.

7. Move to the same field you copied in step 2.

8. Press Ctrl-V to paste the value into it.

9. Click on the paper clip icon to attach the Retrieve Spec to the report, then print or Preview it.

Using Print Offset

I see a Print Offset line at most every Q&A 5.0 Print Options screen. What is it for?

Eric Mulder, Annapolis, Maryland

When printing such things as documents, reports, or labels, Print Offset lets you shift printing further to the left or right on the page. Any Print Offset value you specify depends on the current left and right margin, page width, and Characters per Inch settings on the Define Page screen.

If your printer doesn't start printing at the correct position, you can experiment with different Print Offset values to compensate. With monospaced (fixed width) fonts, the offset value shifts the printed text that many characters. Proportional fonts are a different story.

You shift printing to the right by entering a positive Print Offset value, and to the left with a negative value (such as -4). Though it's easier to understand offset values if the left and right margins and page width are specified in characters per inch and the top and bottom margins are set in lines per inch, the relationships still hold even when you specify margins and page dimensions in inches.

Following are some general rules about Print Offset. They apply to Write document print options, and aren't quite the same for other Print Options screens. Use Print Preview to save paper:

• The maximum positive Print Offset value is equal to the page width minus the left margin setting. In the case of documents, an offset value greater than this results in no text printed.

- The maximum negative Print Offset is equal to the left margin setting. If you enter too large a value, Q&A tells you the number is too small when you try to print (in Write only),

- When you specify page settings in inches, the maximum negative offset value is approximately equal to the left margin setting multiplied by the characters per inch setting. In Write, you can catch Q&A adjusting the Print Offset. Set the left margin to 10, and set the Print Offset to -10. Switch to the Define Page screen (press Ctrl-F6), and change the left margin to 8. Press F2 to return to the Print Options screen, and you'll find that Q&A has changed the Print Offset to -8.

Spell Chek Not Wurking

When I press Shift-F1 or Ctrl-F1 in a document to spell check, I receive a *Spelling Check Canceled* message. What gives?

Leena Hartman, Madison, Wisconsin

Q&A's spell checker relies on a dictionary file named QAMAIN.DCT in the main Q&A program files subdirectory. The message you receive indicates the file is damaged. (If the file is missing altogether, you'll receive an *Unable to open main dictionary: QAMAIN.DCT* error message.)
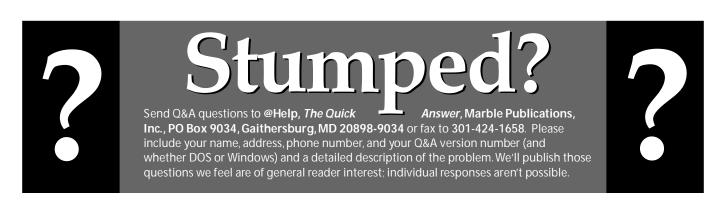
Q&A also provides a personal dictionary file (QAPERS.DCT) that contains words not in QAMAIN.DCT. When you perform a spell check and *Add* a word to the dictionary, Q&A adds it to QAPERS.DCT. You can view and edit QAPERS.DCT by opening it in Write as an ASCII document. If you have a list of special words or names you often include in your documents, this is the most expedient way to add them. (Remember to press Ctrl-F8 to resave QAPERS.DCT file to ASCII format.)

An oddity of the spell checker is that should you misspell a word contained in QAPERS.DCT but not in QAMAIN.DCT, Q&A won't display the correct spelling from your personal dictionary as an option in response to the *List Possible Spellings* command.

Q&A for DOS also comes with a thesaurus file (QATHES.DCT). If it's damaged or deleted, you'll receive the message, *No synonyms were found for the word at the cursor. Retype the word or Escape*.

To restore these files, perform a Selective Reinstall from your original Q&A program disks. **QA**

T.J. Shuflin is a forensic chemist and lab director of a crime laboratory in Alexandria, Louisiana. Since serving as the first president of the National Q&A User Group in 1991–92, he remains active with the group by maintaining its Internet Web site at http://www.timetrend.com/~tshuflin.

Stumped?

Send Q&A questions to **@Help**, *The Quick Answer*, **Marble Publications, Inc., PO Box 9034, Gaithersburg, MD 20898-9034** or fax to **301-424-1658**. Please include your name, address, phone number, and your Q&A version number (and whether DOS or Windows) and a detailed description of the problem. We'll publish those questions we feel are of general reader interest; individual responses aren't possible.

Quick Tip

Watch Those Path Lengths!

Few know this, but Q&A has a maximum database path name length (including the .DTF filename extension) of 45 characters. Here's an example of a 37-character path name, which is within Q&A's limits:

```
C:\QA5\DATA\CLIENTS\SMITH\PAYMENT.DTF
```

This limit can catch you if, for example, you have a macro that copies records to a database specified by just its filename. If the path name to the file is, say, 39 characters, by the time a four-character database filename plus its extension are added, you exceed the limit, Q&A returns an error message that says *Data file must have extension .DTF*, and the macro fails.

For this reason, it's a good idea to ensure you don't use database path names that exceed 32 characters. This allows a character for the backslash, eight characters for the filename, and another four for the .DTF extension. Q&A's Utilities / Set Global Options screen lets you specify a default database path of up to a 41-characters, even though a path of that length won't work. **QA**

Alec Mulvy, Keyword Training, Ascot, England

Calculate Total Area
from Multiple Dimensions

DIANE BEISEL

If you're in property management or real estate, you might need to calculate total area from multiple dimensions that could include negative numbers. Here's a programming technique that makes short work of the problem.

I work as the data processing manager for a municipality. Recently, someone asked if they could fill a database field with multiple dimensions, and have Q&A calculate the total area. The task didn't seem like much of a challenge until they later mentioned that the dimensions could be positive or negative—that is, a building or lot might measure 44 x 42 + 22 x 7 + 2 x 16 - 10 x 3. **Figure 1** shows the relevant portion of the database design I came up with, along with the Program Spec field ID numbers.

The Dimension field can contain up to five dimensions to be added or subtracted to calculate the total area for the Total field. The D1 through D5 fields contain the individual dimensions extracted from the Dimension field. Fields A1 through A5 contain the individual area calculations. The Total field is the sum of A1 through A5—the total area. The Plus, Minus, Position, and Length fields are temporary fields. I use them for interim calculations and to check what the programming is doing.

The database contains no on-entry calculations, as I needed to Mass Update an existing large database. For a live database, you would want on-entry calculations or to turn manual calculations on. **Listing 1** contains the programs for all the fields.

Listing 1. Programming for the AREA.DTF database fields.

```
Dimensions: #30

D1: #40: clear(#40..#110); #110=@len(#30)

D2: #41: #80=@instr(#30,"+");
    #90=@instr(#30,"-");
    {if #80>0
     then if #80<#90 or #90=0
        then #100=#80
        else #100=#90
     else #100=#90};
    if #100=0
    then #40=#30
    else {#40=@left(#30,#100-1);
        #41=@right(#30,#110-#100+1)}

D3: #42:
    #110=@len(#41);
```

```
#80=@instr(@right(#41,#110-1),"+");
#90=@instr(@right(#41,#110-1),"-");
{if #80>1
 then if #80<#90 or #90<2
     then #100=#80+1
     else #100=#90+1
 else #100=#90+1};
if #100>1
then {#42=@right(#41,#110-#100+1);
    #41=@left(#41,#100-1)

D4: #43:
    #110=@len(#42);
    #80=@instr(@right(#42,#110-1),"+");
    #90=@instr(@right(#42,#110-1),"-");
    {if #80>1
     then if #80<#90 or #90<2
         then #100=#80+1
         else #100=#90+1
     else #100=#90+1};
    if #100>1
    then {#43=@right(#42,#110-#100+1);
        #42=@left(#42,#100-1)}

D5: #44:
    #110=@len(#43);
    #80=@instr(@right(#43,#110-1),"+");
    #90=@instr(@right(#43,#110-1),"-");
    {if #80>1
     then if #80<#90 or #90<2
         then #100=#80+1
         else #100=#90+1
     else #100=#90+1};
    if #100>1
    then {#44=@right(#43,#110-#100+1);
        #43=@left(#43,#100-1)}

A1: #50:
    #100=@instr(#40,"x");
    #110=@len(#40);
    if #40<>" "
    then if #100=0
       then #50=#40
       else #50=@left(#40,#100-1)*@right(#40,#110-#100)

A2: #51:
    #100=@instr(#41,"x");
    #110=@len(#41);
    if #41<>" "
    then if #100=0
       then #51=#41
       else #51=@left(#41,#100-1)*@right(#41,#110-#100)
```
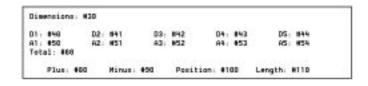

Figure 1. The AREA.DTF database form with Program Spec field ID numbers shown.

```
A3: #52:
    #100=@instr(#42,"x");
    #110=@len(#42);
    if #42<>" "
    then if #100=0
      then #52=#42
      else #52=@left(#42,#100-1)*@right(#42,#110-#100)

A4: #53:
    #100=@instr(#43,"x");
    #110=@len(#43);
    if #43<>" "
    then if #100=0
      then #53=#43
      else #53=@left(#43,#100-1)*@right(#43,#110-#100)

A5: #54:
    #100=@instr(#44,"x");
    #110=@len(#44);
    if #44<>" "
    then if #100=0
      then #54=#44
      else #54=@left(#44,#100-1)*@right(#44,#110-#100)

Total: #60=@sum(#50..#54)
```


Figure 2. A calculated AREA record.

```
Plus: #80
Minus: #90
Position: #100
Length: #110
```

What the programming does

The programming checks for the occurrence of a plus ("+") or minus ("-") sign, then determines which, if any, occurs first. The first dimension is equal to the left portion up to the plus or minus sign. The second dimension is equal to the right portion, including the plus or minus sign. The program continues in this fashion until there are no more dimensions to break out.

The next set of dimensions is likewise processed, ignoring the first character when looking for the plus or minus sign, and without wiping out the field. (For example, when calculating D2, the program fills in D3 before filling in D2). The Area fields are calculated on the same principle, but their programming simply checks for the occurrence of an "x," and multiplies the number preceding it by the number following it.

A completed record with four sets of dimensions looks like **Figure 2**.

A database like this could be useful to anyone in real estate, property management or, in our case, property taxation. **QA**

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Quick Tip Another Faxing Option

I read Jeff Nitka's article, "The No-Overhead Way to Fax from Q&A" (December 1996) with interest. WordPerfect 5.1 and 6.0 for DOS, as well as Lantastic 6.0 for DOS and 7.0 for DOS/Windows 95 come with a faxing utility named FAXDIR. Like QuickLink II and HotFax from Smith Micro, FAXDIR supports command line switches, which means you can control faxing from a batch file, and therefore from a Q&A 5.0 database.

A typical batch file (FAX.BAT) to run FAXDIR might look something like this:

```
ECHO OFF
CLS
C:\
CD\FAXDIR
FAXDIR
FAXSEND %1 %2
ECHO Wait until fax is sent!
PAUSE >NULL
FAXDIR /R
```

The %1 parameter is the path and name of the ASCII file you're faxing. It can optionally be a .PCX file. The %2 parameter is the fax number. The /R command removes FAXDIR from memory. For those who don't have QuickLink II but have WordPerfect for DOS, or Lantastic, FAXDIR offers another faxing option. **QA**

John Pieters, Holland

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❑**The Amazing Tune-O-Matic** – Fun musical database by Tom Marcellus helps you compose, edit, and compile tunes to play on your PC's internal speaker. Works like a musical instrument. You click the sequence of notes on the graphical scale, then set their durations (quarter note, whole note, etc.) from a popup list. Includes sample tunes such as *Happy Birthday*, *CHARGE!*, and *Ode to Joy*. You'll have a blast composing and playing back tunes *you* create. As featured in August 1996 issue. **Q&A 5.0 (requires mouse, not for portable PCs), $29.***

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❑**Automatic 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. Read all about this handy automatic multiple label-maker from Tom Marcellus 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_____

Be Colorful!

for the warning text you want to conditionally appear. Specify the warning text at the Initial Values Spec, then use the Color Settings screen to color the field so its text color matches its background color and both colors match the form's background color. This makes the field and its warning text invisible by default. To have it appear, add an @Color command to your program. Using the earlier sample

InStock program, your revised program might look like this:

```
< #100:
If InStock <= @Lookup("Threshold", 1)
   then {@Color("InStock", 15, 4);
         @Color("WarningText", 15, 4)}
```

QA

David Dvorin owns Phoenix Solutions of Hillsborough, New Jersey, which specializes in tailoring off-the-shelf software for a broad range of business needs. 908-281-6272, Internet dvorin@bms.com.

Quick **Tip** When PgUp Key Behaves Oddly on Multipage Forms

You can get odd navigation behavior in a multipage database. You press PgDn through pages 1, 2, 3 , 4, and 5. But when you press PgUp from page 5, Q&A skips pages, moving you, for example, to page 3 then to page 1. This is because the first field on the skipped pages is read-only and Q&A can't move the cursor to it. It commonly occurs when a read-only help field is placed at the top of a page to remind users which record they're viewing or to provide page-sensitive instructions. You have several options for working around the problem:

• Don't make the field read-only. Instead, program it in a way that any changes to it are canceled on exiting the field. This works best with normal programming set to Automatic Calc,

but has the drawback that Q&A recalculates it every time any field is changed.

• Place a labeless (invisible) "dummy" field in the first field position on each such page, and program Q&A to clear it if it isn't empty.

• Leave things as they are, and instruct users to press Ctrl-PgUp and Ctrl-PgDn instead of PgUp and PgDown. The former approach always works when navigating form pages. **QA**

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