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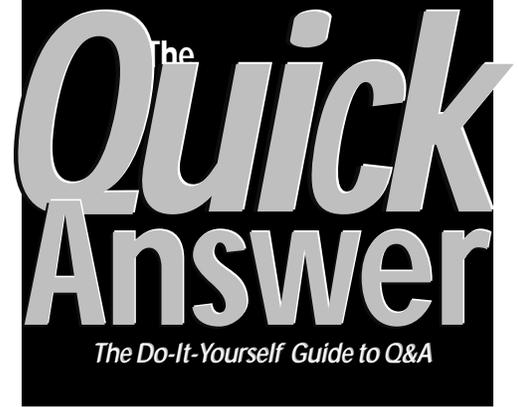
Review

Graphics Printing Comes to Q&A DOS

REVIEWED BY TOM MARCELLUS

Bonus 16-Page
Holiday Issue

DOS Application in
ONLINE Edition



December 1998

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Printing Q&A data in complex business forms? Reports and letters with letterhead on plain paper? Your signature and picture automatically added to merge documents? You thought Q&A for DOS couldn't do it. Think again!

THE bugaboo that's always plagued me with Q&A for DOS can be stated in just one word — *graphics*.

Q&A for DOS can't print even the simplest graphic element. In every case, you have to truck your data *outside* Q&A to a Windows program or spend hours cramming a Write document full of arcane printer control codes. My own exploits with such workarounds — and those of others — are well documented in past issues of *The Quick Answer*.

But those days are over. No, I'm *not* referring to Q&A 5.0's *GRAPH *bitmap file** merge command — the one that *looks like* it'll let you print graphics in Write documents. That dog won't hunt. It bombs if the image has any color in it and reverses black and whites. Even if you manage to account for that, you still wind up with jaggy 75 dpi output on printers that can print at much higher resolutions.

I'm talking about something entirely different. A product that's been around for years but that nobody in the Q&A community (except one who made it a well-kept secret) knew about. In an inexpensive, easy-to-use package, this product gives you the tools you need to include graphics in

your Q&A for DOS output, including printing custom letterhead at the tops of your letters, and even merge-printing your Q&A data with complex business forms. It's called FORMagic from ProHelp Systems. And all you need to take advantage of it is \$99.00 and an HP LaserJet or compatible printer.

How it works

Before I go into the ways you can use FORMagic to make life with Q&A more fun and productive, let me say a little about how it works.

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Any job you send to a printer from *any* software program (DOS or Windows) is comprised of just two things — *text* and *printer codes*. Text, of course, is anything that can be typed on a keyboard. Everything else, including any graphic images, is a slather of printer codes.

A printer can read only two things — text and printer codes. These codes tell your printer how and where to print all this stuff on the page. When you apply fonts or enhancements to a portion of a Q&A document, define your page

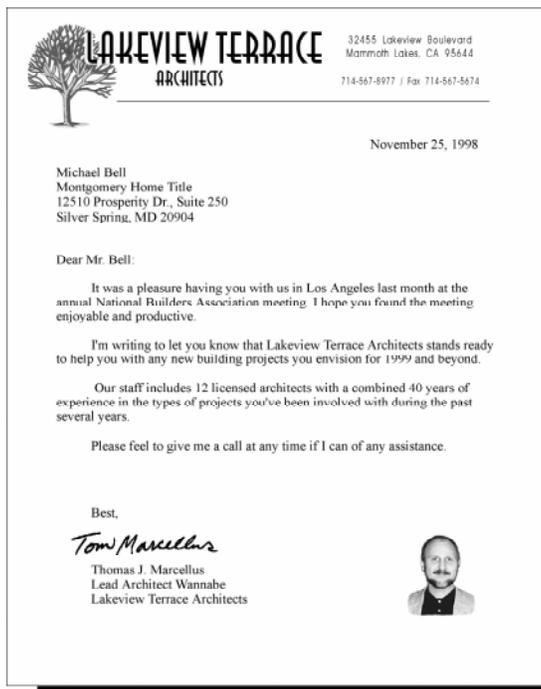


Figure 1. Believe it or not. This merge document, complete with graphical letterhead, electronic signature, and photo of yours truly was printed on plain paper in Q&A for DOS.

Continues on page 3

When Image is Everything

If you've longed for an easy way to add a logo, a photo, or your letterhead to your Q&A DOS output—now you can. If you'd like to print invoices or statements on fancy business forms with lines, boxes, shading and other graphical elements—now it's no problem.

You don't have to export your data or go outside Q&A.

All you need is a little Windows-compatible DOS program that lets you store your letterhead, forms, or graphic images in your HP LaserJet or compatible. To include them on the page or pages as they pass through the printer, you simply place the appropriate codes in your print jobs.

It's a revolutionary approach to getting Windows-quality output from any version of Q&A for DOS. And it won't cost you the farm.

We review FORMagic in this issue. What it can do for your Q&A output (and your company's image) is just terrific.

The Quick Answer™

Editor / Publisher
Tom Marcellus

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Quick Tip

Pass Variables to Second Q&A Copy

Application in
ONLINE Edition



A subscriber asked for help with a situation. During data entry, an XUserselect list of company names told him if there was matching a record in an external database. When there was, he wanted to view that other record, then return to the original one. He knew how to start a second copy of Q&A with @Shell, but not how to pass the company name to the second copy to use in the external database's Retrieve Spec. Here's how.

In Original.dtf, you have a **Company** field for the XUserselect list selection. Its program looks like this:

```
< If @Add and Company = "" then {
  XUserselect("External.dtf", "Company", Company);
  If Company <> "" then @Macro("Store Variable") }
```

The *Store Variable* macro expands the field, presses F2 for the Print Options screen, selects Print to Disk, types *clipboard* as the filename, presses Enter and Y to confirm an overwrite, then closes the field and presses Tab to move to the next field. Here's what the macro looks like:

```
<begdef><nokey><name>"Store Variable"<vidoff><f6><f2>
<dn><dn><dn><dn><end><f10>iclipboard<enter>y<f6><tab><enddef>
```

Tabbing to the next field is a key element of the macro because right next to the **Company** field you have a small labelless field named **Temp** with a program like this:

```
< If @Add and Company <> "" then
  If @Askuser("", "View External.dtf record?", "")
  then { Temp = @Shell("QA -m9"); Clear(Temp);
  @Msg("Welcome back!"); } CNext
```

The -m9 (Alt-9) macro runs when @Shell starts the second copy of Q&A. It displays the Retrieve Spec for External.dtf, moves to the **Company** field, expands it, selects Document/Insert, inserts the *clipboard* disk file, then presses F10 twice to close the field and run the retrieval. In this case, Alt-9 contains a <wait> so when you're done viewing the External.dtf record you can press F10 to return to the Original.dtf record. Here's what Alt-9 might look like:

```
<begdef><alt9><name>
"<caps,>alt9<caps.>"
<vidoff>fsexternal.dtf
<enter><f6><f8>dclipboard<enter><f10><f10><wait><f10>
<capsf10><esc>x<enddef>
```

Since Q&A 5.0's clipboard won't pass a variable to a second copy of Q&A, this technique offers an efficient alternative. It can be used with an XLookup as well as XUserselect. The important thing is that the key value in Original.dtf has a match in External.dtf.

How to Reach Us

Phone 800-780-5474 / 949-722-9127
Fax 949-722-9127
Email mailbox@quickanswer.com
Web <http://www.quickanswer.com>
Mail Marble Publications
The Quick Answer
1927A Harbor Blvd.
Costa Mesa, CA 92627

settings, or include anything that isn't typed from the keyboard, your Q&A printer driver converts these things to printer codes and sends them to the printer along with the text.

These printer codes remain hidden unless you know where to find them. If you install a printer in Q&A to print to FILE, then print a document to that printer and look at it in Write, you'll see printer codes. They're called *escape* codes because they begin with the ASCII 27 left arrow escape character.

Normally, when you send a job to the printer, the printer prints it. FORMagic, on the other hand, generates a special file that's stored in the printer in what's called an *overlay*. When that overlay is triggered by a code in a *subsequent* print job, the printer prints the overlay along with whatever's in that print job, one on top of the other.

Suppose the overlay is your company's letterhead. You type a letter in Q&A Write in the usual way, and press F2, F10 to print it. Out it comes on plain paper with your letterhead neatly printed at the top of the page.

Suppose you have a photo of yourself. You use a desktop scanner to scan it into bitmap file, crop it to remove the white space, then print it to a file that FORMagic can convert to an overlay. Now, whenever you want your photo to print on your Q&A output, you simply send the overlay followed by the Q&A print job to your printer.

You can create a business form (an invoice or purchase order, for example) in a program like Word for Windows or Corel Draw with all the fancy fonts, lines, boxes, shading, and other graphical elements you want. When done, you print it to a file and have FORMagic convert it to a printer overlay. You can then run Q&A mail-merges and print right onto that business form.

Or you can scan a preprinted business form into a PC, print it to a file, and create an overlay out of it to merge-print with your Q&A data.

You can create and use any number of overlays. One might be your photo. Another might be your letterhead or a logo. Another might be a snazzy invoice form to merge print with your Q&A invoice data. Yet another might be your scanned signature to print at the bottom of your merge letters. The quality of the output is terrific.

All you have to do is send (download) the overlay(s) to your printer, then run your Q&A print job. The overlays will print on every page or on just the pages you specify. FORMagic comes with a utility to download your overlays to the printer. My Q&A 5.0 database (included with this month's Online Edition) makes it even easier to download and delete overlays. If you don't get the Online Edition or if you use Q&A 4.0, see Resources on page 15.

Using FORMagic

Details on installing and finding your way around FORMagic are adequately covered in the documentation. (And I found the tech support at ProHelp Systems to be excellent.) I'll give you the benefit of what I learned working with it for the first time. There are a few tricky parts—even a glitch or two—you should know about.

First of all, you'll need a LaserJet II (or later) compatible printer and a LaserJet printer driver installed for it in Windows. (FORMagic creates an overlay from a document or image printed to FILE from a Windows program.)

FORMagic will also work with high end HP DeskJets such as the 1200 and 1600 as these support the full HP PCL 5 printer language that allows them to store overlays. But you should still use a LaserJet driver to create the .PRN file FORMagic uses to generate the overlay.

If you have a LaserJet 6 or later model, install the PCL 5E Windows driver that comes on the CD-ROM with the printer. (FORMagic doesn't support PCL 6 drivers.) ProHelp's tech support actually recommends using a LaserJet 4 Windows printer driver for best results. That's what I had already, so I didn't have to install a new driver. If you install a different LaserJet driver, don't forget to select it when printing your image or document to FILE from your Windows program.

ProHelp recommends using Microsoft Word for printing forms, letterhead designs or graphic images to FILE, though I got good results scanning my signature into Visioneer PaperPort from an HP ScanJet 4P, then cropping the image and printing it to FILE in that program. I used Corel Draw to create fancy letterhead.

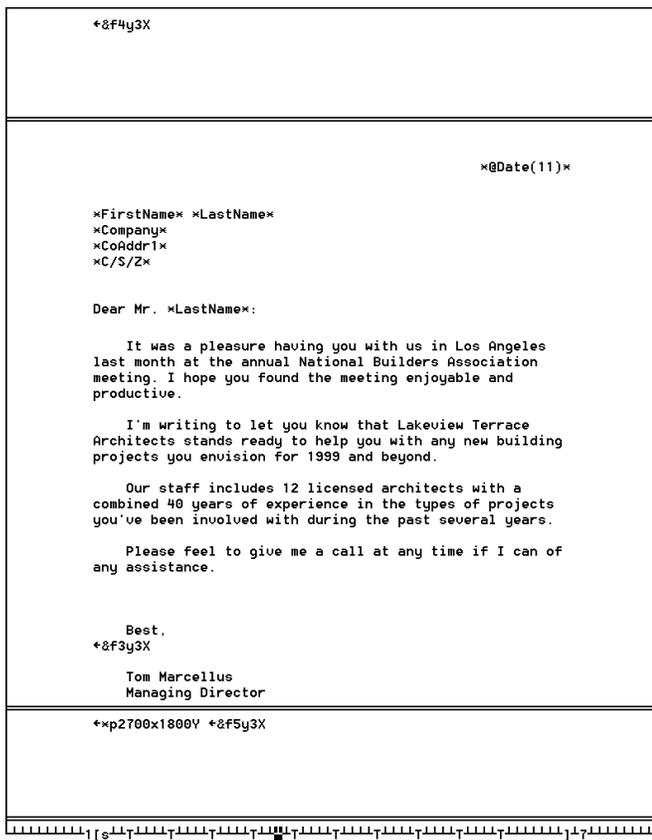


Figure 2. This is the Q&A Write merge document that produced the printed letter in Figure 1. It contains printer codes that tell the printer to include specific overlays stored in the printer

Get the FORMagic for DOS version. It runs just fine under Windows. If you don't want to shell out the \$99.00 for the full version without a look-see, you can download a free 30-day demo copy of the program from www.prohelp.com. That's what I did, though I had a few problems with it which I reported. By the time you read this, hopefully the demo version will be fixed.

You'll use the main FORMagic program to create and manage your overlay files. (See Figures 3 and 4.) Though it also lets you download and remove overlays from your printer, a separate utility, FMDOWNLD, lets you send your overlays to the printer using a DOS command line or batch file. (My database, Overlay.dtf goes one better. It lets you download and remove overlay files from your printer from inside Q&A. More on this later.)

Creating overlays

FORMagic generates two types of overlays—*form* and *image*. A form overlay prints in a fixed position, normally starting at the top left corner of the page. Business forms for data merging, letterheads, and the like are examples of form overlays.

An *image* overlay, on the other hand, is *mobile*—that is, you can make it print in any position on the page using a simple printer control code. (More on this later.) I had no difficulty generating a variety of form overlays in FORMagic, but I ran into trouble trying to get an image overlay of my signature to print properly. I eventually discovered a way to generate a .PRN file that FORMagic liked, but not until after hours of trial and error.

The first step in creating a *form* overlay is to design the business form or letterhead itself. This you can do by scanning an existing printed form or letterhead into your computer, or by designing it from scratch in a Windows program then printing it to FILE using your Windows LaserJet driver.

ProHelp recommends that business forms and letterheads created from scratch be done in Word for Windows. It's easy to do this in Word (see the sidebar) but I didn't find it necessary. For example, I designed the

Figure 1 letterhead in Corel Draw, printing it to FILE (Lakeview.prn) using my Windows LaserJet 4 driver. I then had FORMagic generate a form overlay from Lakeview.prn and download it to my printer. It printed perfectly from Q&A the first time. (The file size, by the way, was 50K. Not much, really.)

If you're *scanning* a preprinted fill-in-the-blanks type business form that you plan to use for Q&A mail-merge, chances are you'll have to save it in the scanning software to some graphic file format. Almost any bitmap file will do— .BMP, .TIF, or .PCX. I found that saving to one type or another made no difference because printing them to FILE from a Windows program just converts them to printer codes anyway.

Before doing any of this, though, find out if your scanning software lets you print the scanned form to FILE. If it does, print it using your LaserJet driver to a file with a .PRN extension, then have FORMagic convert it to an overlay file and download it to your printer. Run a test print. This might be all you need to do.

Otherwise, for .BMP, .TIF, or .PCX images, ProHelp recommends inserting the image in a blank Word for Windows document (at the extreme upper left hand corner of the page, with the top and left margins set to 0) then using Word's tools to crop any white space from around the image before printing it to FILE. For some reason, I couldn't get this to work. The resulting *image* overlays FORMagic generated printed as garbage. As mentioned earlier, I had the best results with image files by cropping then printing them to FILE in my scanning software (Visioneer PaperPort), then using FORMagic to generate the corresponding image overlays.

The images I had trouble with were all signatures. I sent these problem images to ProHelp for analysis, and they said they were able to successfully create overlays out of them using Word 97 to generate the .PRN files. I didn't have Word 97 at the time and wasn't able to confirm those results. All I know is that creating the .PRN files in Word 6.0 and 7.0 didn't work for me.

For *Quick Answer* readers who purchase FORMagic,

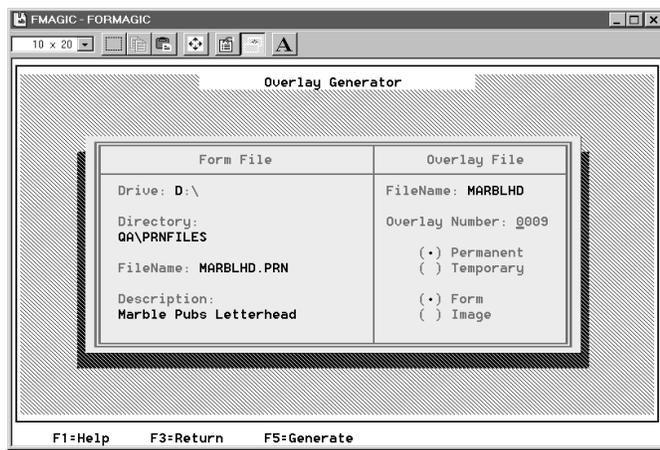


Figure 3. Generating an overlay file in FORMagic from a .PRN file. You can create a fixed *Form* overlay or a positionable *Image* overlay.

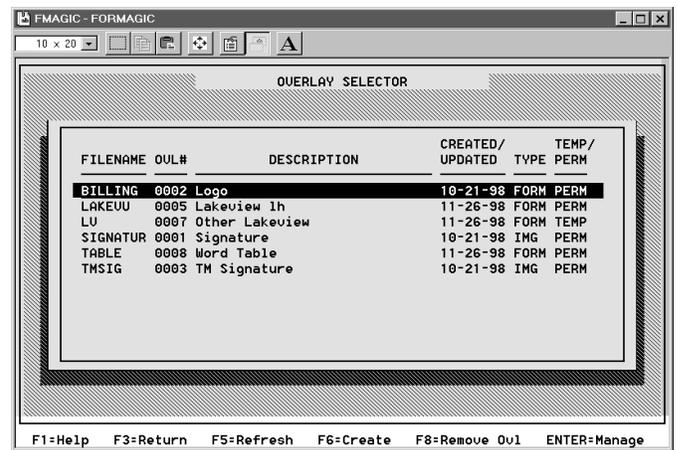


Figure 4. FORMagic keeps track of your overlays and lets you selectively download them to or remove them from your printer's memory.

ProHelp will scan their signature and send them a .PRN file of it free of charge. All you have to do is mail them your signature on a blank sheet of paper. Be sure it's very dark — use black ink — and a bit thicker than the way you normally write it. When you get your .PRN file back, you can use FORMagic to generate an overlay from it and start using it in your Q&A documents.

FORMagic gives you the option of *overwriting* an existing overlay. Don't do it. Instead, delete the original overlay then generate the new one and save it to the old filename. Another thing. Before using FORMagic's test print command to print a newly generated overlay, be sure to have the program download it.

Invoking overlays from Q&A documents

The printed letter shown in Figure 1 was designed and printed as a Q&A mail-merge document. (The actual Write document is shown in Figure 2.) The letterhead, signature, and photo are all FORMagic-generated overlays. The letterhead is a *form* overlay (fixed), and the signature and photo are positionable *image* overlays.

Look closely at Figure 2 and you'll notice three printer codes in the document. The one in the header calls (invokes) the letterhead overlay, the one on the signature line near the bottom of the letter calls the signature overlay, and the one in the footer calls *and positions* the photo. To type the escape character in Q&A, press Alt-F10, then hold down the Alt key while typing 27 on the numeric keypad.

The first escape code, `<-&f4y3x`, tells the printer to include overlay #4 (in this case, the Lakeview letterhead overlay) in the print job. An escape code that calls a *form* overlay can be placed anywhere in the document. Instead of using an escape code, you can place the equivalent *decimal* code in the Printer Control Codes line at the Print Options Screen. The decimal code to print the same overlay would be `27 38 102 48 48 48 52 121 52 88`. If you were placing this code in the document itself, you'd use `*P 27 38 102 48 48 48 52 121 52 88*`. The 27 is the `<-` escape code, 38 is the `&` symbol, 102 is the letter `f` and `48 48 48 52` is 0004, meaning overlay #4. The remaining group of numbers are the decimal counterparts to `y3x`.

Using any ASCII character table, you can readily see how these decimal codes relate to escape codes.

The second escape code in the Figure 2 Write document, `<-&f3y3x`, invokes the signature overlay (overlay #0003). Notice that it's placed right where the signature is to print. Image overlays like signatures must have their printing position specified. You do this by placing the escape code in the right spot in the document or by adding a *position* control code.

The third code, `<-*p2700y1800x <-&f5y3x`, is actually two codes. The first one tells the printer to move 9-inches down the page and 6-inches over, where the second one then prints overlay #5, the photo.

All these overlays were generated in FORMagic as

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Tweak Spacing to Merge Print to Forms

To fine-tune vertical linespacing for data merged with a business form, you can use the `<-&l#C` printer code, where # is the number of lines printed per vertical inch. (The third character in the code is a lowercase "L.")

Suppose, for example, that your lines of merged data are printing progressively higher on the form. In this case, you need to increase your linespacing a bit. First, *decrease* your page length at the Define Page screen. If no joy, try placing a linespacing code at or near the top of the document. Add the code shown in the previous paragraph, set its # value to something between 6 and 12 and do a test print. If the linespacing is too great, try a lower value until you find the one that gives workable linespacing. (You can use decimal fractions such as 8.55 for fine-tuning.)

The code that will print eight lines per inch is `<-&l8c`. In decimal format, that's `*P 27 38 108 56 67*`. If used at the Print Options screen, it's just `27 38 108 56 67`. Note how the 56 in the decimal format corresponds to the 8 in the escape code format. The following table shows several lines-per-inch escape code values and their corresponding decimal values. In decimal, 49 corresponds to 1 (ASCII character 49 is the number 1), 50 is the number 2, and so on:

Lines per inch

Escape code value	Equivalent (ASCII table) Decimal code value
4	52
6	54
8	56
12	49 50
16	49 54

You can also force the printer to start printing the text or data at a certain position from the top of the sheet. The `<-*p600y` code, for example, will force printing to begin 2-inches (600 dots @ 300 dpi) down from the top printable page margin, which is about .4-inches on most printers. This code can also be used in a report or database form header or footer to control where printing starts.

Vertical motion codes like this won't affect how and where the overlays print—just the text and merge fields.

To tweak your *horizontal* spacing, you can adjust your *left* page margin in inches and fractions thereof. This is easily done at the Define Page screen.

@Help

EDITED BY GORDON MEIGS
AND WILLIAM HALPERN



Summing a String of Numbers

DOS WIN

I have a field in a Q&A database that contains a series of numbers with a space between each one. Is it possible for me to have another field contain the sum of all these numbers? For instance, if the first field contained *540 600 800 1200*, the second field would contain *3140*.

Chris, via the Internet

Q&A is very good with data and string manipulation, and this task won't phase it. You'll need three fields, one for the original group of numbers, one for the total, and one for interim calculations. The field storing the total must be formatted for numbers, while the other two can be formatted for text. The trick is to have Q&A keep grabbing then stripping off the last number in the group and adding it to the result until there's just one number remaining. Then you can add that one and you'll have your total. This will work for any group of numbers containing any quantity of digits. For programming purposes, assume that the original data field is #10, the interim calculation field #20, and the total field #30. At the Program Spec, type the following programs in the appropriate fields:

In the data field:

```
>#10: #30=""; #20=#10; Goto #20
```

In the interim field:

```
<#20: If @Instr(#20," ") > 0 Then {  
#20 = @Repllas(#20, " ", "|");  
Rem("Isolate last number");  
#30 = #30 + @Mid(#20, @Instr(#20, "|" + 1, 25);  
Rem("Add last number to total");  
#20=@Lt(#20, @Instr(#20, "|" -1);  
Rem("Remove added number and  
loop through number string");  
Goto #20 }  
Else {If #20 <> "" Then {#30 = #30 + #20; #20 = ""};  
Cnext}
```

In the total field:

```
#30
```

If you use Q&A 4.0 or Q&A Win, remove the Rem statements and the semicolons following them.



Stumped?

Send your Q&A questions to @Help, The Quick Answer, Marble Publications, Inc., 1927A Harbor Blvd, Costa Mesa, CA 92627 or email to mailbox@quickanswer.com. Include your name, address, phone, 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.

Type in your string of numbers, separating each with a space, and press Enter. The only caution is that there can only be a single space between numbers.

Locking Fields After Data Entry

DOS WIN

We run a five-user Novell network with the Q&A databases on the server and the individual stations running their own copy of Q&A 5.0. Our main database (14M in size) is an invoicing file consisting of some 14,000 records and 150 fields. Once an invoice has been completed (in our case, when the invoice date field has been filled), I'd like to lock all but five fields in that record so that any changes to them would require a higher level security. Any suggestions?

John Dudlak, via the Internet

There are a couple of ways to do this—one is very secure; the other can be defeated, but not by accident. The most secure way will significantly increase the file size of the database as it will require adding an additional 145 or so fields to it. The added fields can be as small as two characters, but they'll need field level security assigned to them in such a way that regular users can't see them. (*No access* in the Field Security Spec.) Each of the new fields will act as a mirror field for the corresponding data entry field you want locked. As an example, let's look at the programming for just two fields you might want to lock. Suppose these are #100 and #101. The invoice date field is #150, and the new mirror fields are #200 and #201. In fields #100 and #101, add the following statements:

```
>#100: If #100 <> "" and #150 <> "" and #200 = "" Then  
#200 = #100;  
If #100 <> "" and #200 <> "" and #100 <> #200 Then #100 =  
#200  
  
>#101: If #101 <> "" and #150 <> "" and #201 = "" Then  
#201 = #101;  
If #101 <> "" and #201 <> "" and #101 <> #201 Then #101 =  
#201
```

In field #150, add the following statement:

```
>#150: If #150 <> "" Then {  
If #200 = "" Then #200 = #100; If #201 = "" Then #201 =  
#101 }
```

These statements fill a mirror field for each data field, and reset them to their original value (no changes allowed) if there's a value in the invoice date field. They will fill all the mirror fields as soon as you set a date for the invoice and render them unchangeable. The only way to change a field after the date has been entered is to log on with an administrative password and clear the corresponding mirror field. Only then can the data field be changed. It's a lot of work, but it's very secure.

Now let's look at the simpler way. While not totally secure, you can control accidental changes by using the Navigation Spec. What you would do is place the five changeable fields somewhere near the beginning of your form on the first page. Let's call them fields #1, #2, #3, #4, and #5. For this example, the invoice date field will still be #150, and two of the fields to be locked will be #101 and #102. Add the following statements in their respective fields in the Navigation Spec:

```
>#1: If #150 <> "" Then goto #2
>#2: If #150 <> "" Then goto #3
>#3: If #150 <> "" Then goto #4
>#4: If #150 <> "" Then goto #5
>#5: If #150 <> "" Then goto #1
<#101: If #150 <> "" Then goto #1
<#102: If #150 <> "" Then goto #1
etc.
```

This will only allow the user to cycle around just the five changeable fields once an invoice date has been entered. However, a determined user could use the arrow keys, PageUp and PageDown keys, and End key to navigate backwards into a field and make a change. For a limited level of security, this might be sufficient and it's a lot simpler than the higher-level method. It also has a lot less impact on the database design and size.

Preventing Macro Damage

DOS

Suddenly, one of my macros doesn't work. When I run it, I get a message telling me to enter a user ID and password. Problem is, I don't know either one. How do I get unstuck?

Art Bay, via the Internet

Sounds like you've got a macro that went wild during an earlier execution and assigned a password to the database. This can happen if you don't take care to bullet-proof your macros. Take a macro that performs several steps, such as sorting and exporting data, opening a merge document, and printing. If there's a failure in the first step (Q&A finds no records that meet your request), the macro doesn't stop—the rest of its keystrokes are still played out. Depending on the names of your databases, a macro gone wild could "think" a character in a filename is actually a menu choice or answer to a Yes/No dialog box, and the remaining macro keystrokes could wind up setting a new password for a previously un-password-protected file or, worse yet, redesigning or even deleting the database!

Consider a macro that types *findings* in a field at a Retrieve Spec, presses Enter, types *Arthur* in the First

Name field, presses Enter, types *Miller* in a Last Name field, then presses F10 to continue. If this macro were launched from the wrong place, it could assign a master password to your last open database with a user ID of *rthur* and a password of *Miller* (**f...d...s...Enter...A...rthur...Miller...F10**).

Always check your macros for every possible point of failure, and try to include strategically placed Escapes and N's (for "No") that will ensure Q&A winds up at the right place even in a failure situation. For an accidentally password-protected database such as yours, Symantec's data recovery services might be able to remove the password at a reasonable cost. Contact Kim Leet at 541-984-7910, email datarec@symantec.com.

Programming Space Limitation

DOS WIN

I understand there's a limit to the size of a Program Spec. I don't know what it is, but it seems I've exceeded it because I'm getting a message saying, *This spec is too long...* when I attempt to save it. Does anyone know of any way round this restriction? Are Rem comments counted as part of the total characters allowed? Are spaces and blank lines counted? My Program Spec is heavily commented with Rems which I'd like to keep if I can. Is there any other way of including comments in a Program Spec? I'd be most grateful for any advice on this matter.

Mike Middleton, via the Internet

The Program Spec limit is 64K (maximum 32K per field) and every character counts. To keep the size of the Spec down, use valid abbreviations for keywords, such as *XLu* for *XLookup* or *Usl* for *Userselect* wherever possible. Limit your use of spaces and carriage returns. (They make programs easier to read, but count as characters.) Replace repetitive programming in multiple fields with Gsub/Returns. Keep your Rem statements short and sweet. And use Navigation Spec programming wherever possible since it has its own limit and isn't counted in the 64K Program Spec total.

64K is a huge amount of programming. Judicious use of the above options should alleviate your problem. We have some of the most complex databases imaginable and we've never hit the 64K barrier.

For much more on this topic, see "Use Your Programming Allowance More Effectively" in the December 1994 issue.

Network Security

DOS WIN

I'm trying to set up access rights for various users on my network. I've divided them into two groups called "Q&A Scan and Read" and "Q&A Write and Modify." I tried to give the first group only Scan and Read Rights through the assignment of rights in Novell Netware 4.11, but Q&A didn't seem to understand the criteria and wouldn't let these users

Concludes on page 16

How to Recognize, Repair and Prevent Database Corruption, Part 2

ALEC MULVEY



Database corruption is the unseen enemy lurking in the shadows when you're working with your Q&A databases. It's probably the most common cause of Q&A data loss—and it's getting more prevalent. In this article, you'll learn how to recognize a corrupt database, what you can do about it, and how to prevent it.

LAST month, in Part 1 of this article, you learned what database corruption typically involves, what causes it, how to recognize it, and some of the things you can do about it using Q&A's own facilities and a utility called QEXTRACT. In this concluding Part 2, you'll discover more tools to help you spot and repair corruption, as well as additional ways to maintain the health of your databases.

DTFDOCTR

DTFDOCTR, from John Dow, is a superb suite of Q&A diagnostic and repair utilities. With DTFDOCTR you can:

- Obtain in an instant useful information about a database such as the number of fields and records in it, how many generations there are, whether the Intelligent Assistant has been taught, and how much of the finite Program Spec space remains.
- Perform analyses of data and Specs (Program, Initial Values, Reports, Print, and so forth) to find out if they're damaged.
- Extract data from a damaged database (or a good one for that matter).
- Transfer report designs between databases.
- Repair damaged databases.

As a data extraction tool, DTFDOCTR far surpasses QEXTRACT (discussed last month). DTFDOCTR extracts all the records that *can* be extracted, it doesn't transpose fields, and you don't have to create multiple Merge Specs to import the data if the extracted data represents more than one generation. DTFDOCTR is significantly faster, too. With its database repair tools, you might not need to

DOS
WIN

extract your data at all.

This isn't the place for a detailed evaluation of DTFDOCTR (see "Database Corruption Revisited" in the June 1997 issue and check under DTFDOCTR and DTF SPECS in the Topic Index at www.quickanswer.com). DTFDOCTR offers a host of database repair and extraction tools, as well as a number of other facilities (such as transferring reports and determining generations) which would be invaluable by themselves. Anyone who uses Q&A seriously should have a copy of this program. Certainly, it's an essential for all Q&A developers and database administrators.

If all that fails

If everything discussed so far fails, there's not much else you can do. There are some types of problems (beyond the scope of this article) that can be fixed by editing the file at the hex level, but this is problematic and best left to experienced professionals. Many of these tricks can be performed much more safely by DTFDOCTR. Once you've tried all these techniques without success on your unusable Q&A database, it's time, as the saying goes, to "revert to your most recent backup," or send the database to Symantec's data recovery service.

How to avoid corruption

Corruption isn't inevitable, but it's certainly common. There's much, though, that you can do to avoid it.

Hardware & environmental measures

- Keep your hard disk in good order by running *Scandisk* and *Defrag* regularly. (These utilities are supplied with DOS since version 6.2 and Windows 95 and later.) Don't, however, set up Scandisk to run unattended, automatically repair errors and not write to a log (or neglect perusing the log). If you do, you won't be aware if Scandisk has been repairing errors on a regular basis—a sure sign that a hard disk replacement is in the offing.
- Ensure your network is set up correctly, and protect network cables from physical damage.
- Attach a UPS (Uninterruptable Power Supply) to the file

server, and consider getting them for workstations, too. This particularly applies to Q&A 5.0.

- Don't use databases during a thunderstorm. Ideally, switch off and unplug the computers (but don't touch power leads *during* a thunderstorm for safety reasons). To take this one stage further, unplug the telephone cords connecting the modem(s), too, to avoid telephone-system-borne power problems. This is clearly impractical for a network but is a consideration for home office. (An excuse for an early lunch, perhaps!)

User measures

- Ensure Q&A is set up correctly.
- Ensure good practice is observed as regards exiting Q&A properly, not leaving databases open unnecessarily, and so on.
- Don't casually alter the design of your databases. (See "More on Redesign" below.)

Q&A 5.0-specific measures

- Don't upgrade a Q&A 4.0 database to Q&A 5.0 without first performing the steps shown in the sidebar, "Before You Upgrade a Q&A 4.0 Database to Q&A 5.0."
- Don't set any *default* font(s). (When you choose Write / Type/Edit and press Ctrl-F9, the Font Assignments screen should contain no entries.)
- Don't copy a Q&A 5.0 database without first bringing the data and its structure up to one generation. Backup the database (onto the C: drive is sufficient), Recover it, resave all Specs (including reports and Print Specs), and perform a null Mass Update (a Mass Update of all the records using a blank Update Spec).

More on Redesign

Q&A makes it easy to add a field to a database. But doing so represents a significant change to the database's structure and needs to be done with care.

Before any database redesign, first make a backup of the database (onto the C: drive is sufficient). Run Recover on it. This might correct a minor problem that could well have been exacerbated by the redesign. Then make your design changes.

You're not done yet, though. When you add or delete field(s), you're creating a new generation of the database. You should then take steps to reduce the generation overhead of Q&A. At a minimum, you need to bring all the data to a single generation. This is done by performing a null Mass Update, which effectively rewrites the data. However, you'd be well advised to bring all Specs to the current generation as well. Resaving them does this. Save all Specs on the Customize menu, all Specs on the Programming menu, all the reports, and finally all

the Print Specs.

Once you've gone to all this trouble, it's very little extra work to go that one step further and create a new first generation database (File / Copy / Copy Design only). This produces a new database with no data. Give the new database a suitable description (press F6 at the List of Files screen), then make another copy of this blank database design (F5 at the List of Files screen) and store it in a safe place.

Next, copy all the records to the new database, using blank Retrieve and Merge Specs. The resulting database will then be as sound as you can make it and will not be prone to generation-related problems. The new database, once checked, can be renamed with the name of the original database, overwriting it in the process.

If you intend to make a first-generation database, you can omit the null Mass Update following the redesign. You can't omit saving the Specs though. Copying a Q&A 5.0 database with Specs from a previous generation can introduce spurious "garbage" characters in the Retrieve Specs and perhaps the Column/Sort Specs of your reports.

Q&A 5.0 is particularly sensitive to multiple generations. Some commentators (Messrs Meigs and Halpern, for instance) say that there's only one *good* generation of a Q&A 5.0 database — the *first* one.

I've found that there's a direct relationship between the incidence of database corruption and the frequency of clients modifying their databases. The sites where I get no corruption at all for many years are the ones where they simply leave their databases alone. This is another reason why database corruption is becoming more prevalent: databases are getting older and have endured more redesigns without the preventative maintenance they need.

Changing a field type

Changing a field type (at the Format Spec) should not be undertaken lightly. If you change a field from text to number, or from number to date, for example, then Q&A

What Defines a "New Generation"?

Imagine the definition of a Q&A database as a list of the field codes seen in form design/redesign, like this:

```
<AA > <AB > <AC > <AD > <AE >
```

Anything that changes this list creates a new generation. Thus adding a field, deleting a field, or swapping fields creates a new generation. Changing field labels, field names, or field sizes *doesn't* create a new generation.

will accept the change, but you might be left with report Retrieve Specs having conflicting parameters (for example, .. *Oct 96* in what is now a date field). This is an invalid Retrieve Spec, but it's stored in the database and could facilitate corruption at a later date.

Proactive data protection

If you really want to safeguard your data, you need to actively look after it. The following needs to be done regularly to all databases:

Backup, Recover, Null Mass Update

Do these at frequent intervals, especially after a form redesign as described earlier. A macro-driven procedure can be created to perform these tasks automatically on a regular basis, and scheduled to run during the night when the databases aren't in use.

Moreover, the following can be done to ensure the integrity of your databases:

- Backup
- Recover the database
- Null mass update
- Save all Specs, including reports
- Remove indexes
- Copy design / Copy selected records to the new database
- Reinstate indexes in the new database
- Reset Sharing Mode to *Allow* if necessary

This is as much as you can possibly do to ensure you have a sound database. There is no way to *guarantee* a Q&A database is free of corruption.

Keep a copy of each database's design

Lastly, you should always keep a copy of the database design (not necessarily the data). You should make a new copy every time you redesign the database, and periodically thereafter. This way, if the worse happens, you at least have a structure into which you can import the data. Extracting data from a damaged database is always easier than extracting the database design.

Conclusion

Your data is always at risk. For no apparent reason, your database can become unusable. Having adequate and viable backups is the first and most important safeguard, but isn't enough. There's much you can do to help prevent corruption occurring. If it does occur, there's much you can do to remedy it. But if these fail, it's comforting to know that you have a recent backup to fall back on. Accordingly, the last words on the subject must be, ***Backup! Backup!! Backup!!!***

Before You Upgrade a Q&A 4.0 Database to Q&A 5.0

1. Back up the database.
2. Delete any reports and Print Specs you no longer use.
3. Change the global date format to (1).
4. Remove any @Date and @Time Initial values.
5. Note and remove any Speedy field codes (*S, SU, SE*).
6. Run Recover database.
7. Perform a null Mass Update. (Update all records leaving the Update Spec blank).
8. Open the database in Q&A 5.0 to upgrade it.
9. Change the global date format as desired.
10. Reinstate any @Date and @Time Initial Values.
11. Reinstate Speedy fields.
12. Set the File Sharing Mode as appropriate (*Allow* for a peer-to-peer network).
13. Change the form colors, if desired.
14. Recover the database again.
15. Run a null Mass Update.
16. Make another backup and keep both backups in a safe place and don't overwrite them.

Some of these steps aren't absolutely essential but are certainly desirable. Steps 14 and 15, for example, could be omitted, but they'll do no harm and might do some good.

Useful Contacts

John Dow

6560 Rosemoor Street, Pittsburgh, PA 15217-3026
412-973-9473, email: sales@johntdow.com
Web site: <http://www.johntdow.com>

Symantec data recovery

175 West Broadway, Eugene, OR 97401-3003
541-984-7910
Email: datarec@symantec.com
Web site: http://www.symantec.com/techsupp/recovery/qa/qa_index.html

Alec Mulvey owns Keyword Training & Consultancy based in Ascot, near London, England. Alec has been building Q&A applications and performing data recovery for nine years, and is the current president of the (Inter)National Q&A User Group. Keyword Training is also the UK distributor for the International English edition of Q&A (the "Definitive Edition" CD-ROM) and also John Dow's Utilities. Fax +44-1344-884-111, email amulvey@compuserve.com.

Use WinClip to Copy Q&A Docs to the Windows Clipboard

TOM MARCELLUS

WinClip used to do database fields only. Now it does Q&A Write documents as well **DOS**

ALMOST as soon as WinClip for Q&A DOS appeared in early 1998, people wanted to know if it could copy Q&A documents to the Windows Clipboard to paste into a Windows word processor such as Microsoft Word or WordPerfect.

In fact, after installing WinClip, some folks called to say, "It doesn't work." What "wasn't working," it invariably turned out, were attempts to use it to copy Q&A documents.

WinClip wasn't designed to copy documents — *it was designed to copy the contents of database fields* — a fact clearly stated in its literature. (You *could* always copy a Write document with WinClip, but only after you inserted it in a database field.) Still, people wanted to use it to copy documents displayed in the Write word processor.

Frankly, when I created WinClip, it didn't occur to me that it could be adapted to copy documents from Write. It can, and rather easily. With a couple of setup modifications, you'll be able to use WinClip to copy Q&A Write documents (while in Write) to the Windows Clipboard in addition to database fields. Following are the modifications you'll need depending on whether you're using WinClip with Q&A 4.0 or 5.0.

For Q&A 5.0

If you're using WinClip with Q&A 5.0, here's what you do to make it copy Q&A Write documents to the Windows Clipboard:

1. Add another selection to your External Programs menu. For the Menu Option, name it something like 8 - *WinClip Docs* (assuming you have a 9 - *WinClip* selection for your regular WinClip Menu Option, as suggested in WinClip's documentation). For the Command Line, enter *Winclip.bat* (without the %g parameter). No changes to the batch file, *Winclip.bat*, are necessary.
2. Next, create a new macro that invokes WinClip for copying documents. If you're using *Ctrl-C* as the hotkey for the regular WinClip, you might want to use *Ctrl-D* for the document-copying version. Here's the macro:

```
<begdef><ctrlid><name>"Winclip<sp>doc"<vidoff><ctrlf8>
<capsf4>c:\qa\winclip.txt<enter>y<altf9>8<enddef>
```

Be sure to change the *c:\qa\winclip.txt* to the path to your Q&A program files.

Now, pressing *Ctrl-D* in Write will save the displayed document in ASCII format to *Winclip.txt* and invoke the WinClip Docs selection on the External Programs menu. This will start WinClip and copy *Winclip.txt* to the Windows Clipboard. You'll then be able to paste the document into any Windows program, or into Q&A Write or an expanded database field if you're running Q&A in a window. Your original Q&A Write document, if already saved to its own filename, will remain intact.

For Q&A 4.0

If you're using WinClip with Q&A 4.0, all you need to do to make it copy Q&A Write documents to the Windows Clipboard is create another macro like this one:

```
<begdef><ctrlid><name>"Winclip<sp>Doc"<vidoff><ctrlf8><home>
c:\qa\winclip.txt<enter>y<esc><esc>z<enddef>
```

This macro assumes you have a *zWinclip* Main menu alternate program that launches *Winclip.exe*. (Your path to your Q&A program files directory might differ.)

When you have a document displayed, pressing *Ctrl-D* will save it in ASCII format to *Winclip.txt* and invoke the *zWinClip* selection (alternate program) on your Q&A Main menu. This, in turn, will start WinClip and copy *Winclip.txt* to the Windows Clipboard. You'll then be able to paste the document into any Windows program, or into Q&A Write or an expanded database field if you're running Q&A in a window. Your original Q&A Write document, assuming it's already saved to its own filename, will remain intact.

For either version of Q&A, keep in mind that although WinClip will retain the formatting of your copied document, such as the paragraph structure, indents, and blank lines, it won't retain enhancements such as fonts, boldfacing and italics. The result you'll get is the same as when you save a document to ASCII format with *Ctrl-F8* (which is what the WinClip macro does.) When you paste the document into a Windows program, it will appear in whatever font and font size are active at the insertion point.

WinClip is available for \$49 postpaid from Marble Publications. To order it, call us 800-780-5474 or fax us at 949-722-9127. You can also order it using the online ordering form at our Web site at, www.quickanswer.com.

Booleans, Numbers, Errors and Workarounds

MARK MYERS

Application in
ONLINE Edition

WOULD you use a Q&A function if you knew it executed improperly a percentage of the time? Of course not. But if you're using Booleans that rely on the equality or sum of fractional components, your program could operate improperly in as many as one out of five passes.

The problem isn't unique to Q&A. It's a cold, hard fact in any computer. And a real concern to anyone programming a PC application.

How and why does this happen? Consider something as simple as the following:

```
X= 1.72;
Y= 2.28;
Z = 4;
If Z = (X+Y) then
{statement = "True "} else
{statement = "False"};
```

Unfortunately, there's a chance that the statement will be set to "False" because the computer has difficulty hanging on to exactly 2.28 or 1.72. It can handle integers just fine. But what's the accurate representation of 2.28 in binary? Your PC can get close; but it can't always be precise. When you require exact equality for a Boolean like the earlier one to return "True," you're requiring that any inaccuracies introduced in the binary conversions cancel each other out.

Fortunately, you have a few options at your disposal. And unless you're working with very unusual sets of values, you can make your Booleans ironclad. While there might be other alternatives, the three primary solutions are using a *less-than* statement, rounding your values to the same number of digits, and converting your numbers to integers before performing mathematical calculations. Each has its pros and cons.

Less-than statements

Using a less-than statement is a textbook solution for beginning programmers in low-level languages such as C or PASCAL. In general, it's extremely reliable. It also requires the least run-time overhead of any workaround. Its form (using the example above) is as follows:

```
If @Abs(Z-(X+Y)) < 0.00001 then
{statement = "True"} else
{statement = "False"};
```

You should use this form for the highest number of decimal places appropriate for the values in your database. For example, if your data values can possibly be meaningful out to four significant digits, you shouldn't use <0.01 because your code will return "True" at times when it should return "False." My testing indicates that this method works consistently in Q&A as long as your number values don't extend beyond eleven decimal places. For added measure, I recommend using it only for values extending to ten or fewer decimal places. So, the extreme form in Q&A is as follows:

```
If @Abs(Z-(X+Y)) < 0.0000000001 then
{statement = "True"} else
{statement = "False"};
```

Rounding

A second solution is to round your values to an appropriate number of significant digits. This will usually discard any garbage dangling at the end of your value from the translation into binary. My testing has shown it to be 100 percent reliable to the fifteen significant digits that Q&A can handle. This method, therefore, is slightly preferable to the first option for ensuring accuracy. It does, however, come with an operational penalty if you use this form:

```
If @Round(Z,8) = @Round((X+Y),8) then
{statement = "True"} else
{statement = "False"} ;
```

Once again, it's better to collect everything on one side of the Boolean and test its relationship to zero.

The following technique offers an obvious reduction in function calls and has one additional advantage:

```
If 0 = @Round((Z-(X+Y)),8) then
{statement = "True"} else
{statement = "False"};
```

In very rare cases, the first rounding method could incorrectly return "False." For instance, 4.349999999999999 would be rounded to 4.3 while 4.35 would be rounded to 4.4. Putting the variables on one side of the equation will eliminate this potential problem.

Either way, notice that there's only one call to @Round on either side of the equation because using the form below is likely to introduce rounding errors.

```
If 0 = @Round(z,8)-(@Round(x,8) + @Round(y,8)
then
{statement = "True"} else
{statement = "False"};
```

Converting to integers

A third solution is to convert everything to integers. This is safe provided you have accurately calculated the number of digits beyond the decimal point and multiplied by the appropriate power of ten. The drawback to this approach is that it exacts a much more severe operational cost as you convert values to integers and back into decimal form.

This approach works best when applied to a money field or something similar because there's a fixed number of digits beyond which the data becomes meaningless. For most money applications, this will be at the hundredths or possibly the thousandths level.

If you use this strategy, the solution will be specific to your implementation in order to reduce the number of conversions you must perform. In general, try to do only one set of conversions per block of code rather than converting back and forth everytime you code in a Boolean.

The proper form for the code would look something like this:

```
X= @Int(X*100000);
Y= @Int(Y*100000);
Z = @Int(Z*100000);
```

```
If Z = Y + X then
{statement = "True"} else
{statement = "False"};
```

```
X= X/100000;
Y= Y/100000;
Z= Z/100000;
```

As you can see, this form is not fundamentally different from the rounding form. Therefore, you should seriously question its necessity before employing it.

Whichever of these methods you choose, you should see more reliable performance when using a Boolean based on equality. I suggest testing various implementations in your code, including testing for inappropriate functions.

If you need proof that this problem actually exists, go to the *Quick Answer's* Web site (www.quickanswer.com) and download Boolean.zip from the Freebies page. Boolean.zip contains Boolean.dtf, Boolean.idx, and Boolean.txt.

Mark Myers is a programmer/analyst with Bluegreen Corporation in Boca Raton, Florida, email lowfi@hotmail.com.

What a Combo!



Adobe Acrobat Reader



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Graphics. . .continued from page 5

permanent overlays that stay in the printer until they're removed from memory via a special control code shown below or the printer is turned off. *Temporary* FORMagic overlays are killed when the printer receives a *reset* command. By default, Q&A sends a reset at the beginning of any print job, so they aren't useful.

Here are a few escape codes that can come in handy for use with overlays:

`<=&f#y3x` prints overlay number # on just the first page of the print job if the code is in the *body* of the document. (If in the header or footer, prints on every page).

`<=&f#y4x` prints overlay number # on every page in the print job.

`<=&f5x` disables overlay printing for current job.

`<=&f6x` removes all overlays from printer memory.

Again, you can use the decimal equivalents of these escape codes. Either way, they won't appear in your output. And you can color them in the document to make them less obtrusive. Italics red subdues them nicely.

Overlays won't print in any job that doesn't contain the control code(s) to invoke them — good news if you're sharing a network printer. If you'll need a few overlays during the day, just download them in the morning and be done with it. Just remember that if the printer is turned off then on again, you'll have to redownload your overlays.

If you're mail-merging to a form overlay that's actually a business form with boxes where the data is supposed to go, expect a bit of trial and error setting up your merge document. In Q&A Write, the placement of text and merge fields onscreen pretty much dictates where they'll print on the page. But settings such as page length, margins and font size also affect where text and merge fields print.

Page length, in particular, affects linespacing. The lower the page length setting, the more space you'll get between the lines and vice versa. Also, you'll have to take into account merge fields that might be empty in *some* of the merged records. Unless you insert a placeholder on lines that contain a merge field but no text, Q&A will pull everything below that line up (collapse the line) if the field is empty.

A handy placeholder is the Alt-7 bell character because it shows onscreen (as a large dot) and keeps the line it's on from collapsing, but doesn't appear in the output. To type it in Q&A, press Alt-F10, then hold down the Alt key while pressing 7 on the numeric keypad.

To fine tune vertical and horizontal spacing, see the sidebars on the next page and page 5.

To print a mobile image overlay at a precise position on the page, precede the overlay calling command with a position command. For example, the following two

commands placed at the bottom of a document will print image overlay #0008 starting 9.4 inches down from the top of the page, and 6.4-inches from the left margin:

```
<=&p2700y1800x <=&f8y3x
```

The 2700 means 2,700 dots measured at 300 dots-per-inch.

Once you've got your overlay codes in the document, you're set from there on out. You simply save the document, and it'll work with those overlays forever.

If you're printing to a business form overlay using a Q&A Print Spec, the *coordinate* method will probably serve you best. By specifying coordinates, you can tell Q&A exactly where on the page to print the data for each field.

If you print invoices or monthly billing statements, whether from Report (along the lines of those in my July 1998 article) or as Write merge documents, a letterhead overlay makes an ideal companion.

If you print invoices, sales orders, or other transaction documents with F2, F10 immediately after filling in a new database record, you can create an attractive form overlay to add pizzazz to these documents. You can add the overlay-calling decimal code to the Print Options screen, place its corresponding escape code in the form's header or footer, or make the escape code an initial value in a hidden field. You simply load the overlay before you start data entry and go about adding and printing your records in the usual way.

Your overlays don't care where the text and data comes from — Write, Report, or File — and nothing you print will affect them. They'll print on the page right where you expect them to print, every time.

Aside from not having to copy your Q&A data elsewhere, the beauty of using a FORMagic form overlay when merge-printing to business forms is not only that you can print far more attractive forms than you can design in Q&A, but also that you can use proportional fonts without the form's lines and boxes going haywire.

Sending overlays to the printer

FORMagic's FMDOWNLD utility lets you download overlays to your printer without having to start the FORMagic program. The DOS command to download an overlay is: `fmdownld overlayname printer port`.

For example, to download an overlay named *MyLtrhd* to the printer on LPT1, go to the FMAGIC directory and enter `fmdownld myltrhd lpt1`.

Your printer's panel lights will flash briefly then return to normal, indicating the overlay is now in the printer's memory and ready to rock.

FMDOWNLD can be invoked from a DOS batch file as well, which is what *Overlay.dtf* does. *Overlay.dtf* lets you select your overlay from a pop-up list and download it without leaving Q&A. It also lets you remove overlays

from your printer's memory.

One problem I had with the FMDOWNLD that came with the demo version was its failure to download a few particular overlays. With these, I'd get a perfunctory *Overlay not in file message*, even though I could see the overlay file was right there in the /FMAGIC directory where it was supposed to be.

Curiously, when I downloaded the same problem overlays using the main FORMagic program, they downloaded and printed just fine.

However, If I recreated the .PRN file (after changing some little thing) and regenerated the problem overlay in FORMagic, the problem with FMDOWNLD and that overlay more often than not vanished. If you experience this glitch, you'll still be able to download your overlays simply by starting FORMagic. To save steps, you could launch the program using @Shell or External Programs in Q&A 5.0, or an Alternate Main menu program in Q&A 4.0.

Conclusion

FORMagic also lets you create what are called *profiles*. These are *sets* of overlays designed to be downloaded and printed as a package. Using profiles, you can create and use complex overlays spanning multiple pages, each with separate forms and images.

By giving you true Windows-like output without leaving Q&A, FORMagic makes a dandy Q&A companion. Get a copy of it now even if you don't plan to use it right away. Down the road you'll be glad you did.

Tom Marcellus is the editor of *The Quick Answer*

Resources

FORMagic for DOS, \$99.00 per PC (includes a free signature file). Demo version at www.prohelp.com. ProHelp Systems, Inc., 353 Westminister Lane, Lilburn, GA 30047, Phone 770-279-2008, Fax 770-279-2511 Email prohelp@prohelp.com

We Can Help You Create Your Forms and Images

Let *The Quick Answer* Labs design your forms, letterhead or logos, or prepare your forms or images for use with FORMagic. We have the graphics software, scanning facilities, and know-how to get you the forms and images you need. Call us at 800-780-5474 (fax 949-722-9127) or email us at mailbox@quickanswer.com.

About Overlay.dtf

Overlay.dtf is a modifiable Q&A 5.0 database that lets you conveniently download and remove overlays from your printer. If you don't receive the Online Edition of *The Quick Answer*, you can order the database from us postpaid for \$15. We can create a Q&A 4.0 version of Overlay.dtf for you at additional cost.

Designing a Business Form

Designing a form such as an invoice or purchase order to use as a merge overlay for your Q&A data is pretty easy to do in Word for Windows. For some ideas, see "Merge-Print Complex Forms In Your Windows Word Processor" in the August 1998 issue, p. 6.

Because business forms are typically a series of boxes within which you want to place your data, Word's Table feature makes an excellent form design tool.

The key thing when designing a table for your Q&A data is *linespacing*. You want the table row height to match the linespacing of the rows of Q&A data your printer will merge into them.

After you insert the table in your Word document, highlight it, then select **Table / Cell Height / Row**. Set the row height at *exactly 12 pts* if you'll be printing your Q&A data at that linespacing.

To print your Q&A data at the same 12 pt linespacing, you can use a printer code in the report header or Write document. Figure 5 shows a portion of a Q&A document with three printer codes in the header and some text in the body (which could be merge fields.) The text is in 10 pt Univers bold, but the important thing is that the first printer code tells the printer to use overlay #8 (the table), the second one specifies six lines per inch printing (exactly 12 pts), and the third one tells the printer to start printing the text 40 dots below the document's top margin (which in this case is set to 1-inch) as a fine-tuning adjustment. Real tabs are used between the columns.

Figure 6 shows how with these settings the printer prints the Q&A data right where it should go on the overlay.

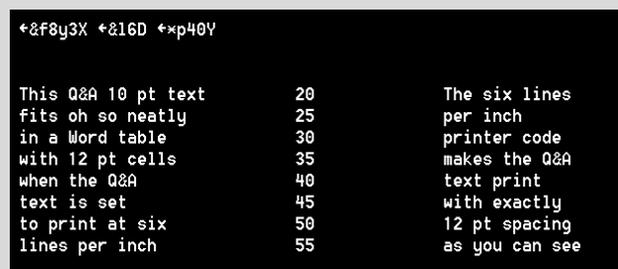


Figure 5. Three printer codes in the header of this Q&A document tell the printer how to merge the data cleanly with the overlay.

This Q&A 10 pt text	20	The six lines
fits oh so neatly	25	per inch
in a Word table	30	printer code
with 12 pt cells	35	makes the Q&A
when the Q&A	40	text print
text is forced	45	with exactly
to print at six	50	12 pt spacing
lines per inch	55	as you can see

Figure 6. The data merge-printed with the shaded table overlay.

@Helps. . .continued from page 7

in at all. I had to give them "Write" Rights in order for them to use Q&A. So, how do I differentiate between my two groups in Q&A?

Richard McMillan, via the Internet

You can't use the network operating system (NOS) to specify who has rights in Q&A databases, only to set who has rights to access the drive itself. If you don't give a user Write ability, Q&A won't be able to open the file, since Q&A must, at the very least, write a date and time change for each access and create a temporary file. However, Q&A has very good built-in security options. Assign your users a password for each group. Then, following the Q&A File / Design / Secure a File / Assign Access Rights path, give one group Read Only rights by setting everything to "No," and the other Edit/Enter rights by setting the appropriate lines to "Yes." (See Figure 1.) First, though, be sure to assign a master password for yourself (set everything to "Yes") to allow

you to modify and control the security of the database. Also, make sure to assign XLookup passwords to any database that performs lookups to other protected databases.

Security Rights Screen

Indicate here which rights this user should have:

Can assign password rights?.....:	Yes	No
Can change design and program?.....:	Yes	No
Can mass delete?.....:	Yes	No
Can delete individual records?.....:	Yes	No
Can run mass update?.....:	Yes	No
Can design/redesign reports?.....:	Yes	No
Can enter/edit data?.....:	Yes	No

Figure 1. Setting all values to "No" will allow the user or group to view records but not access any of the fields. Such a user will be able to press PageDown/PageUp to see all pages of a multi-page form, but won't be able to make any changes or add new records. The user will be able to run existing reports.

Bill Halpern and Gordon Meigs own Professional Computer Technology Associates (PCTA) in Newtown, Pennsylvania. PCTA specializes in data management and supporting systems and services. 215-598-8440, 71023.356@compuserve.com



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