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# Searching for Something?

TOM MARCELLUS

Searching a huge database for a word or phrase is pretty easy. But when it comes to finding something that could be anywhere in even a few dozen Q&A *document* files—good luck!



If you've created hundreds of Q&A Write documents over the years as I have, then you've probably suffered the frustration of trying to track down the ones that contain a person's name or a special word or phrase when you haven't a clue as to what file or files it might be in. You might have found yourself guessing at the possible filenames and opening one document after another in a desperate attempt to find what you're after.

With a database, you simply go to the Retrieve Spec field that's likely to contain the text, type in **..clutch overhaul..** and Q&A will find all the records where that field contains "clutch overhaul."

When it comes to searching a directory full of document files for a name or phrase, though, you'll either have to display each suspected file in Write, or use Windows' *Start | Find Files or Folders* command, where you can have Windows search each file in a directory for the specified text. The problem with *Find Files*, though, is *file associations* should you want to view found files; Q&A document files can have any filename extension (.DOC, .MRG, .ASC, .QA and .QAW are common ones).

I wanted to have this kind of document file search capability in Q&A itself—strictly for my Q&A-related files—so I designed a little database named *Finddocs.dtf* to do it for me. Now, if I need to find all the documents that contain "Bill Halpern," I simply type in the directory name followed by "Bill Halpern." (See Figure 1.) Q&A searches all the files in that directory and shows me the ones that contain "Bill Halpern"—and I can view any of them immediately in the database record's built-in viewer.

*Finddocs* works with all Q&A for DOS documents, including merge documents, ASCII and .TXT (plain text) files, batch (.bat) files, and even designed-for-the-Web HTM files (which are really just plain text files). You

# The Quick Answer

The Do-It-Yourself Guide to Q&A

September 2000

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simply tell *Finddocs* which directory to search and what you're searching for and it'll hand you a list of all the matching documents.

*Finddocs* also makes an excellent programmer's tool. By saving those brilliant code snippets to separate ASCII files, you can use *Finddocs* to search for key words in them (including @Function names) without having to remember what file they're in or which database they came from.

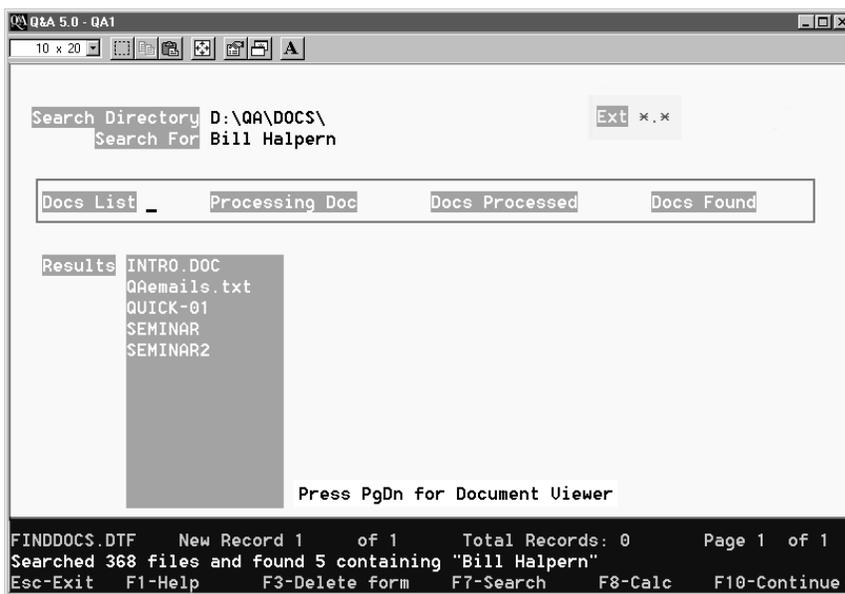


Figure 1. A search on "Bill Halpern" finds five out of 368 documents that contain the name.

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# If you've been thinking about coming to the International Q&A Users Conference 2001,

January 12-14 in Orange County, California, now is the time to get your registration in.

Since we announced the development of a new Q&A-compatible database product and the January conference barely a month ago, registrations for the event have poured in at three times the expected rate and we could run out of space sooner than expected!

Take advantage of our earlybird registration rate of \$95. (After September 30, registration is \$125 depending on available space.)

To register, simply go to [www.quickanswer.com/bash.htm](http://www.quickanswer.com/bash.htm), click on the **Registration** link and fill out and submit the brief form. We'll make sure you're confirmed for this important event.

If you would like to register but don't have an Internet connection, you can call us at 800-780-5474, fax us at 949-722-9127, or write us at the address below and we'll register you over the phone or send you a registration form.

Decide now to join us in January at the biggest Q&A users event ever!



## Y2K—Don't Get Complacent

Recently, I was called out to troubleshoot a macro-driven QA 4.0 procedure that had been set up to process exam results downloaded on just two days each year. The downloaded data was fed into Q&A where reports were printed showing the results in a variety of ways. The problem was that a posting routine, part of the procedure, was finding no matching records to post to. On inspection, it turned out that the key value that was used to match the exam results records with the target records was short by one leading zero. The first two digits were the year of the exam, stored in a field which, despite being a number field, contained "00" for the current year. When strung together with other data, the "00" became "0," hence the key value mismatch. Converting the field to text and mass updating with the F8 *Auto Program Recalc/Calculation*

*Statements* option set to *Yes* easily remedied the situation. This underscores the point that just as we saw Y2K issues last year long before December 31st (such as with future renewal dates), we should be on the alert for similar Y2K-related issues throughout this year as well.

Alec Mulvey

## Letters

### Problem Printing Online Edition

I am new to the download version. I had no problems with the July 2000 issue, but when I opened the PDF file for the August 2000 issue, I got an error message on an "Acrobat Exchange" heading stating: "Could not find Colorspace named 'Cs8'." I tried printing the issue and all the graphics were missing. I'm using Acrobat 3.01. —Richard Light

*For about a year we've been using Acrobat 4.0 to create The Quick Answer Online Edition PDF files. Although we specify "Acrobat 3.0 compatibility," the August issue contained a color setting not supported by Acrobat Exchange 3.0 or Acrobat Reader 3.0. Online Edition subscribers have reported improved viewing and printing resolution with Acrobat Reader 4.0, which you can download free at [www.adobe.com](http://www.adobe.com). —Ed.*

# The Quick Answer™

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The Quick Answer (ISSN 1052-3820) is published monthly (12 times per year) by Marble Publications, Inc., 1927A Harbor Blvd., Costa Mesa, CA 92627 USA

Cost of domestic subscriptions: 12 issues, \$109; Outside the U.S., \$129; Online edition, \$79. Single copy price: \$11; outside the U.S., \$12.50. All funds must be in U.S. currency. Back issues are available upon request for the same price as a single copy.

**POSTMASTER: Send address changes to The Quick Answer, 1927A Harbor Blvd., Costa Mesa, CA 92627.**

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# Searching? . . . cont'd from page 1

## Finddocs design

The design of Finddocs.dtf is pretty simple, it contains the following nine fields:

```
Search Directory
Ext
Search For
Docs List
Processing Doc
Docs Processed
Docs Found
Results
View Docs
```

- **Search Directory** is where you enter the name of the directory to search, such as D:\QA\DOCS.
- **Ext** lets you optionally enter a DOS wildcard parameter such as \*.DOC to include only files with that extension. The default is \*.\* or blank (includes all files).
- **Search For** is the field where you enter the word, phrase, name or whatever you're searching for.
- **Docs List** is where Q&A retrieves and temporarily stores the names of all the files in the specified directory. As Q&A completes its search of a file, that file is removed from **Docs List** until **Docs List** contains no more files to search.
- **Processing Doc** is the field that contains the current document being searched.
- **Docs Processed** and **Docs Found**, respectively, store the running total of how many documents have been searched and the number of "hits" scored.
- **Results** stores the cumulative list of the filenames on which at least one match occurred.
- **View Docs** lets you view the Results documents.

Figure 1 shows the field layout for the first screen page. On the first line of the *second* page, add this text:

```
Press ↑ then PgDn to View Another Results Document
```

You can compose the up arrow character by pressing Alt-F10 then pressing Alt-24 (on the numeric keypad). Just below this line, type a "<" at the left margin, then move to the bottom of the page and type a ">" at the right margin. (Name this field **View Docs** at the Field Names Spec.) This will give you a page-size field to view the **Results** documents.

The only fields you will actually use are **Search Directory**, **Ext**, **Search For** and optionally **View Docs**. The

others are used strictly by Q&A for temporary storage and processing.

The action couldn't be easier. You simply enter the directory to search then the search word or phrase, and Q&A cycles through the documents and displays the **Results** list. You can then optionally view each document on the **Results** list.

## Finddocs programming

It doesn't take a great deal of programming for Finddocs to work its magic. Only the first three fields—**Search Directory**, **Search For** and **Docs List**—and **View Docs** contain programming. Let's look at each one in turn.

### Search Directory

```
> If Search Directory <> "" Then
{
  If @Right(Search Directory, 1) <> "\"
  Then
    Search Directory = Search Directory + "\"
  }
  Else Goto Search Directory
```

The **Search Directory** program checks to make sure you've entered something in the **Search Directory** field. If you have, then Q&A appends a final "\" to it if you forgot to do so.

### Ext

```
> If Search Directory <> "" Then
{
  Clear(Results);
  @Msg(@Shell("FINDDOCS.BAT " + Search Directory));
  Docs List = @Insert("C:\DocsList.txt");
  If @len(Docs List) = 0
  Then
  {
    @MsgBox("No matching files in " + Search Directory,"or "
    + Search Directory + " does not exist.",
    "Please select a new directory."); Goto Search Directory
  }
  Else Docs List = @Replace(Docs List, "
", ";")
}
}
```

The **Ext** field's program clears the **Results** field (in case you're running consecutive searches) and invokes a DOS batch file named Finddocs.bat, passing to it the specified **Search Directory** and optional file parameter as variables. Finddocs.bat (more on which later) contains commands that generate an alphabetical text file list (one filename per line) of all the filenames in the specified directory, which Q&A inserts in the **Docs List** field.

If **Docs List** contains no text, then the specified directory doesn't exist or there were no matching files in it. Q&A tells you so by displaying a message box to that effect and returning you to the **Search Directory** field for another go at it. Otherwise, the list of files is converted from one filename per line to a continuous list with each

filename separated by a semicolon. (This simplifies the programming required to process the list.)

Note that the second parameter of the @Replace command (the character to locate and replace) is a carriage return. You specify a carriage return in Q&A programming by typing the opening double quote mark at the tag end of one line, pressing Enter, then typing the matching closing double quote mark at the very beginning of the next line.

Now that the **Docs List** field contains all the filenames, it's time to enter the word, name or phrase you want to search for.

### Search For

```
> If Search For = "" Then
  Goto Search For;

  If Docs List = "" Then
    Goto Search Directory
  Else
  {
    Docs Processed = "0";
    Docs Found = "0"
  }
```

The **Search For** program first checks to make sure you've entered something to search for and that the **Docs List** field contains one or more filenames to search. It then initializes the **Docs Processed** and **Docs Found** counter fields with "0" (zero).

Now that you've got filenames to search and a word or phrase to search for, the processing of the documents can begin in the **Docs List** field. Here's the programming for that field.

### Docs List

```
< If Search Directory <> "" and @Len(Docs List) > 1
  and Search For <> ""
  Then
  {
    Docs Processed = Docs Processed + 1;
    Processing Doc = @Left(Docs List, @Instr(Docs List, ";") - 1);
    Processing Doc = @Insert(Search Directory + Processing Doc);
    If @Instr(Processing Doc, Search For) > 0 Then
    {
      Docs Found = Docs Found + 1;
      If Results = "" Then
        Results = @Left(Docs List, @Instr(Docs List, ";") - 1)
      Else
        Results = Results + "
" + @Left(Docs List, @Instr(Docs List, ";") - 1)
      };
      Clear(Processing Doc)
      Docs List = @Mid(Docs List, @Instr(Docs List, ";") + 1, 32000);
      Goto Docs List
    }
  }
  Else
  {
    @Msg("Searched " + Docs Processed + " files and found " + Docs Found
    + " containing " + @Chr(34) + Search For + @Chr(34) );
    Clear(Processing Doc, Docs Processed, Docs Found);
    @Color(Results, 15,7)
  }
```

The **Docs List** program performs a few final checks to ensure all the pertinent fields contain something.

If everything looks good, the **Docs Processed** counter is incremented by 1, the first filename in **Docs List** is

isolated and inserted in the **Processing Doc** field, and the file is searched for the specified word or phrase. If you get a "hit" on the **Search For** value, the **Docs Found** counter value is incremented by 1 and the filename is added to the **Results** field list. If this is the first filename to be added to the **Results** list, it appears at the top. All subsequent files on which hits occur are simply added to the list in alphabetical order.

After the first filename is processed in this manner (whether or not a "hit" occurred) Q&A removes it from the **Docs List**. The programming that does this finds the first semicolon (which will follow the filename just processed), moves to the next character after it (the beginning of the next filename), then replaces the contents of **Docs List** with everything from that point to the end of the list.

The document just searched is now cleared from the **Processing Doc** field and the cursor is now looped back to the same **Docs List** field where the program is re-executed. This process continues until all the filenames have been processed and **Docs List** is empty.

When **Docs List** is exhausted, a message appears at the bottom of the screen telling you how many files were processed and how many of those contained the search text. The three processing fields are cleared, the **Results** field containing the matching document names is "lit up" with a color change, and you're done.

You can print the **Results** list by expanding the field with F6 and pressing F2. Or, you can optionally return to the **Search Directory** and/or **Search For** fields and enter another directory to search and what to search for.

If someone other than you might be using this database, you can go to the Navigation Spec and add the following help-related commands to the first two fields:

```
< @Msg("Enter the path to your documents, such as C:\QA5\DOCS. Press F1 for Help")
```

```
< @Msg("Enter the word or phrase you want to search for.")
```

The last field requiring programming is the **View Docs** field on the second screen page. (See next page.) Its program gives you the option to view each **Results** document by creating a comma-delimited list

of the filenames in the **Results** field and displaying them on a Userselect pick-list. You simply click on a filename and Q&A inserts it in the page-sized field. To view another document, you press up arrow then PgDn again.

## View Docs

```
< If Results = "" Then
{
  @Msg("No Results documents to display");
  Goto Results
}
Else
{
  View Docs = @Replace(Results, "
", ", ");
  View Docs = @Insert(Search Directory +
  @Userselect(View Docs))
}
```

## Finddocs batch file

The DOS batch file that's called by the @Shell command in the **Search Directory** field (see above) contains these two lines:

```
Dir %1 /A:-d/b/o:n > C:\docslist.txt
Exit
```

Here's what each of the commands means:

- **Dir**—The usual Dir command that tells DOS to display a list of the files in the directory.
- **%1**—In DOS batch files, the percent sign followed by a number is called a *replaceable parameter*. When you launch this batch file via the @Shell program (see above), Q&A supplies the name of the directory for the Dir command as in this example:  
  

```
Finddocs.bat D:\QA5\DOCS\
```

Finddocs.bat replaces its %1 parameter with the "D:\QA5\DOCS\" passed to it, so it now has a directory name against which to run the Dir command.
- **/A:**—This switch, when used following the Dir command, tells DOS that one or more *switches* or *attributes* follow to control how you want the Dir command carried out.
- **-d**—Indicates that you want files only (no directory names).
- **/b**—Specifies that you want one filename per line with no heading or summary information included.
- **/o:n**—This switch tells DOS you want the list of files sorted in alphabetical order by filename.
- **> C:\docslist.txt**—This tells DOS to redirect (save) the output of the Dir command to the specified text file.

The combination of the directory name and these switches tacked onto the Dir command give you an alphabetically-sorted text file of filenames you can then turn around and insert into the **Docs List** field as

described in the earlier programming discussion.

To create this batch file, select *Write / Type/Edit* from the Q&A Main menu, type the two lines as shown above, then save the file to your main Q&A (program files) directory by pressing Ctrl-F8 and naming it Finddocs.bat.

## Curious behavior

I noted a few oddities when using Finddocs.dtf:

- When I ran it on a directory that I knew contained non-text files—binary files like .EXE, .COM, .OVL, .FNT, .PRN and the like, it still worked. That is, it didn't come to a grinding halt but somehow "coped with" these files and still found any matches on text-type files in the same directory. (What Q&A actually does with non-text files in this process I'm not sure.)  
  
Good file management practice dictates that you should store your Q&A documents and related text files in one or more directories of their own and *not* mix them in with Q&A program files, graphics files, or any other non-text files in the same directory. And it's never a good idea to store your database or document files in the same directory as Q&A's own installed files.
- Finddocs didn't flinch when processing document files containing 100K (about 30 pages) of text. When I received a "Not Enough Memory..." message, I invariably traced it down to a huge ASCII file, such as a database import or export file. After running a few informal tests, I concluded that anything the Write word processor will open, Finddocs will process.
- The oddest thing of all is that the **Finddocs.bat** batch file shouldn't even be necessary! That is, I should have been able to make the Dir command and its switches all part of the @Shell command itself, like this:  
  

```
@Shell("Dir " + Search Directory + " /A:-d/b/o:n > C:\docslist.txt")
```

  
For some reason, though, this just wouldn't work on my PC—it failed to find any files at all in the specified directory. I've heard of people having trouble with @Shell in Windows NT/2000, but I use Windows 98. Fortunately, the procedure in this case lends itself just as well to a batch file, so it didn't present a problem.
- With additional programming and by tweaking the batch file, you should be able to configure Finddocs.dtf to search the specified directory *along with any subdirectories under it*. In this case, you'll want your **Results** list to show the path as well as the filename on which a match occurred.

Finddocs.dtf and the Finddocs.bat batch file are included in this month's download file for Online Edition subscribers.

Tom Marcellus is editor of *The Quick Answer*.



EDITED BY WILLIAM HALPERN



## Trouble Printing to PDF Format

I'm having difficulty printing a 160-page Q&A for Windows report to a PDF file. I've attached the error message.

Marc Sorenson

This Windows error message indicates a memory conflict when you try to generate a PDF file by printing to Adobe's Acrobat PDFWriter printer driver from Q&A for Windows. We've seen this problem before with Q&A, Adobe Acrobat 4.0 and Windows 95. The problem doesn't occur with Acrobat 3.0. If you decide to install Acrobat 3.0, be sure to first *uninstall* Acrobat 4.0. You must have the full Acrobat package to *create* Portable Document Format (PDF) files. To just *read* PDF files, you can download the free Acrobat Reader from [www.adobe.com](http://www.adobe.com). To create PDF's in Q&A for DOS, see "Make Your Q&A Write Documents Portable" in the June 1999 issue.

## Q&A DOS Not Launching External Programs

When I try to start Word 2000 from Q&A 5.0 as an Alternate Program or External Program using the command line, `c:\progra~1\micros~1\office\winword`, I get the message "This program cannot be run in DOS mode." But if I go to the DOS prompt via the MS-DOS shortcut on my Windows Desktop and enter the same command, up comes Word.

Bob Shamo

The solution is different depending on your operating system. Windows 2000 and NT have a hard time deciding when and how to use long file names. Depending on the setup of the window in which the command is run, it might not like the `c:\progra~1\micros~1\office\winword` command even though it will accept the same command at a DOS prompt. In Windows 2000, the best way to launch an external program from Q&A is to use a batch file like this (use quotes around the path, as shown):

```
@echo off
c:
cd"program files\microsoft office\office"
winword
exit
```



## 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](mailto: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.

In Windows 95/98, the problem might be in the way you have your shortcut set up. Check the shortcut's properties (right-click on the icon) and click on the *Advanced* button on the *Program* tab. If you have *Prevent MS-DOS mode from detecting Windows* checked, Word will *not* run. Uncheck this option and you should be okay.

## Report Omits Dates

We have a small database designed to track stock trades. A report we run works fine until we add a Sort Spec—in this case, the **Opening Date** in ascending order. The report omits the same dates from all but the first record every time we run it. We get the same results on two different computers. We are about at wits end on what to do. Is there a fix or patch? I've included a sample report.

Mark

If by "omits" you mean that the date just doesn't appear on the line with the record, then it's because the report is being sorted by date and Q&A's default is to *not* repeat duplicate sorted values. You can easily remedy this by including the "R" repeat code in your Spec. That is, to sort by Opening Date, make the Column/Sort Spec for that field read `3,AS,R`. Now, Q&A will repeat the date on every line of the report, even when it's the same as the previous record's date.

## Copy Design and Corruption

I've been trying to copy the design of a Q&A 5.0 database. Q&A displays the usual message "...this may take several minutes"—but it never finishes. All other Q&A databases work and copy without difficulty. I get the same result with this database in Q&A running in Windows 98 and NT 4.0 on two other computers.

Everything else checks out normally and all the reports in all the databases (including the ones that use XLookup to this problem database) run okay. But I know something is not right. Can you make any suggestions or should I put my head in the oven?

Jim B.

Turn that oven off! Copy Design failures of this type usually indicate a corrupted database. This is the case here, especially since you said that the database was changed many, many times and you always copied the design to make sure that you had “cleaned it up.” You must make sure that the design of the database is generation one *before* you copy it! Check all the Report Retrieve Specs, the Initial Values Spec and the Restrict Spec for invalid characters, especially in the last field. I bet you will find some. Remove them, F10 through all the Specs, run a null mass update on the database (leave the Retrieve and Update Specs blank), recover the database, then make a new copy with the Copy Design command. I bet it will work.

*[Jim subsequently wrote to say that he had found some “garbage” in the problem database’s Restrict Spec even though he didn’t recall ever using that Spec. Once he removed the garbage and resaved the Spec, he was able to copy the database’s design without a hitch. —Ed ]*

## Moving to Q&A for Windows

I have several questions. First, does Q&A 4.0 for Windows come with a printer driver for an HP Desk jet 820Cse inkjet printer? I’ve been crippled by not being able to print to this printer using Q&A for DOS and might switch to Q&A for Windows mainly to be able to print. Second, is there much of a learning curve with Q&A for Windows? Third, I run Q&A for DOS on an older 486 computer. My intention would be to install Q&A for Windows on a newer Pentium machine. I see in your Web site’s Q&A FAQs page that some special installation steps are required. Are these difficult? Fourth, with respect to using both Q&A for DOS and Q&A for Windows, will I be able to “sneaker net” the data? That is, will I be able to transfer the data back and forth between the programs? My hope is to be able to use my old machine for regular updates to the data, while relying on Q&A for Windows for my printing. Is that a realistic hope?

David J. Berger

Unlike Q&A for DOS, Q&A for Windows doesn’t come with or require any printer drivers of its own. It uses the installed Windows printer drivers. If the printer works with other Windows programs, it should work equally well with Q&A for Windows.

When coming to Q&A for Windows from Q&A for DOS, expect a moderate learning curve. Though the programs have much in common, the way you run reports, mail merges, and the like isn’t quite the same. Moreover, Q&A for Windows doesn’t support macros or custom menus.

Is installing Q&A for Windows difficult? No—but you must follow the prescribed installation-related steps. The most important thing is that you must install Q&A into a hard drive partition that’s smaller than 2G. (You can use Partition Magic or Partition Commander to create a smaller partition for Q&A.)

As for your “sneaker net”—Q&A Win comes with a utility that updates Q&A 4.0 DOS databases to make them compatible with Q&A Win. Q&A 5.0 DOS comes with a utility that makes Q&A Win databases compatible with 5.0. These enable you to use your databases in either version of Q&A and on either machine.

## ‘Disk Drive Door Open’ Message Revisited

I just read the August *Quick Answer* and noted your @Help article on this topic. I thought this issue had been resolved some time ago but perhaps not. Anyway, I resolved it for a client some time ago, but couldn’t remember the specifics. Fortunately, I kept a note on it in my Q&A database and was able to find it.

This client changed hardware vendors and, against my recommendation, upgraded from Novell 3.?? to NT along with a new server. This “disk drive door open” message began popping up, only on one workstation that wasn’t new. However, the individual using this workstation was the only person performing a particular task—printing quotations. This was about the only task among hundreds that used Q&A’s Print Spec. By redesigning each Print Spec, we were able to eliminate the error message and problem.

Bud Rhines

Yes. By redesigning the Print Specs, you probably re-specified the font file and printer, which would solve the problem. (The paths to the printer and fonts files are saved with each Spec.) A new hard drive, a new network, and probably new drive mappings are what led to the problem. The “disk drive door open” message is Q&A’s roundabout way of telling you that it can’t find the font or printer-related files it needs to satisfy the Spec.

## Label Printers and Q&A for Windows

With Q&A for Windows, I’m unable to print to my Seiko Label Printer. The printer prints from its main control panel, but won’t work with Q&A. Is there a patch or macro that will make it work?

Guy Lamunyon

As far as we know, all specialty label printers use their own application- and hardware- specific software programs to print labels. In other words, they print from an internal database that’s part of the label printer’s software. They may be able to print from other supported programs such as Word or ACT! via DDE or OLE links. At best, you can probably copy and paste information from your Q&A database into your label printing program, but we don’t know of a way to actually *link* Q&A for Windows with the label printer’s software. You might try checking with Seiko.

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# Programming Basics, Part 2



ALEC MULVEY



Last month I showed you how to get started with simple programming and we got as far as conditional programming

statements and how to set *names* for your fields which can differ from the field *labels* on the database form. Now let's put these field names to good use.

## Using field names in programming

Field names are not case-sensitive. When you leave the field at the Program Spec, Q&A checks any field names you've used in your programming to make sure they exist in the database. Here's an example using field names:

```
#120: IF Completed = "Y" THEN Final Total = Total
```

There are several reasons to use field names in programming instead of LFN's (Logical Field Numbers such as #30):

- Your programming is easier to understand. For example, **Total Cost = Invoice Value + Sales Tax** conveys exactly what the program does, whereas **#80 = #70 + #210** requires more thought.
- You're less likely to make a mistake. You're not likely to type "**Incl Tax**" instead of "**Before Tax**," whereas you can easily type the wrong LFN.
- You can avoid having to number all the fields involved in your programs.
- You're able to use range calculations by giving a group of fields sequential names. For example, if you have a series of line-items and each has an Extended Cost field (**Qty** multiplied by **Unit Cost**), naming the fields **ExtCost1**, **ExtCost2** and so forth allows you to use the expression: **Total Cost = @Sum(ExtCost1..ExtCost8)**. This is not only convenient and easy to understand, but is also simple to alter if you should add Items 9 and 10. For this to work, the field names must end in a number.

Use of field names also allows you to use indirection, a powerful advanced programming technique not covered here. See, for example, the programming for the **Temp3** field on page 4 of the July 2000 issue.

## On-field-entry and on-field-exit statements

There is another method of controlling when calculations take place. You can precede the field name or LFN with a

symbol to specify that the program is to be executed either when the cursor *enters* the field or when it *leaves* the field. For example, the statement, **< #50: #50 = #30 + " " + #40** tells Q&A that on entering this field (#50), make its contents equal to the contents of field #30, plus a space, plus the contents of field #40. You can abbreviate the statement to: **< #50 = #30 + " " + #40**.

When you use on-field-entry and on-field-exit statements, you do not have to use Logical Field Numbers. So, this expression is equally valid in a City field:

```
> IF City = "London" THEN Range = "Local" ELSE Range = "Distant"
```

## Operators

The table below shows a list of the mathematical operators you can use in programming statements.

Operator	Meaning
+	plus
-	minus
*	multiply
/	divide
=	equal to
<>	not equal to
>	greater than
<	less than
>=	greater than or equal to
<=	less than or equal to
AND	both comparisons
OR	either comparison
NOT	reverses conditional test

A useful addition to this list is "" (a set of quote marks with nothing in between). It means "blank." The = "" operator means "is blank" and the <>"" operator means "is not blank" or "contains something."

This allows your program to put something into a field if it is empty, but also allows the user to change the entry.

Here's an example that auto-fills the

**Salute** field (on entering it) with the **Title** plus **Lastname** (For example "Mr Marcellus") only if field #80 is empty:

```
Title: #40
Last Name: #60
Salute: < #80: IF #80 = "" THEN #80 = #40 + " " + #60
```

## Deciding which type of programming to use

**General form programming** (for example, **#120: Sales Tax = ...**) has the advantage of always giving you the correct result whenever the form is recalculated—that is, whenever any field in the database is changed when Calculation Mode is set to *Automatic*. This is particularly useful when a number of fields might contribute to the

calculation results. Over-use of this method, however, can cause performance problems, such as when many lengthy calculations are performed over and over again with every field change.

**On-field-entry or on-field-exit programming** (programs beginning with the "<" or ">" symbols) is the preferred method when other fields are calculated from a single value in a field. For example, when entering (or choosing from a list) a customer code, all the fields relating to that customer (**Address, Tel Number, Contact Name** and so forth) should be retrieved immediately on leaving the Customer Code field. A common error is having separate programming for each field whose value is filled based on the Customer Code. This necessitates tabbing through all these fields to complete the lookups. Worse yet, if a user fails to tab through some of the fields after changing a customer code, erroneous data will result.

The best practice is to use your skill and judgement to employ a mixture of these various programming execution methods. I *never* leave calculation mode set to *Manual*, which is the Q&A default for a new database. I view the Calc Mode dialog box (Shift-F8 when viewing a record) as offering a choice between "Show Wrong Results" or "Show Correct Results"!

## Lookup tables

A Lookup table is like a supplementary database within your database. Each database has one Lookup Table which consists of one Key column and four additional columns where information can be stored and looked up.

KEY	1	2	3	4
Frequent	Authors			
GN	Gina	Novelle		
DR	Dave	Reid		
RA	Robert	Abuhoff		
PS	Phoebe	Spinrad		
GM	Gordon	Meigs		
AG	Allan	Gottlieb		
DD	Dave	Dvorin		
MB	Mike	Bell		
BH	Bill	Halpern		

Here is the first screen of a Lookup Table. It's taken from T.J. Shuflin's QAINDEX database which he maintains to record all the articles and

tips published in *The Quick Answer*. This database is included in this month's download file for Online Edition subscribers and is also available in a Q&A 5.0 version from the Freebies page at [www.quickanswer.com](http://www.quickanswer.com) and in a Q&A 4.0 version at [www.qaug.com](http://www.qaug.com).

The purpose of this part of the Lookup Table is to save T.J. time when entering new records. If the author is a regular one (the names shown in the table are from the early days of *The Quick Answer*), then T.J. needs to enter just the initials such as "BH" and his programming copies the full name to the relevant fields. We'll look at the programming that does this shortly.

Although you can have only one Lookup Table per database, it can be used for more than one purpose, as long as the key values (in the first column) are unique. More on this later.

There is nothing to stop you from putting helpful text in the Lookup Table, such as the heading and separator shown in the example, as long as the text is not likely to be the same as a Key value. In this Lookup table, no author will have the initials "Frequent."

Since Q&A is not case-sensitive when searching the Lookup Table, you can use uppercase or lowercase.

To Edit the Lookup Table:

1. Select File / Design File / Program a File.
2. Select the Database.
3. Select Edit Lookup Table.
4. The Lookup Table is displayed. Type in the data.
5. Press F10 to save and continue when you're done.

To...	Press...
Move to the next column	Tab
Move to the previous column	Shift + Tab
Move down a row	Enter or Down arrow
Move up a row	Up arrow
Delete a row	Shift + F4
Insert a row	Cursor in first column, Insert, then Enter
Move within a cell	Left & right arrow keys
Expand a long cell entry	F6

The table to the left shows how to navigate the Lookup Table.

## Lookup programming

You might be confused at first by Lookups, Xlookups, Lookup *statements* versus Lookup *functions* and all their variations. You can ignore Xlookups for now, but you should know the difference between a *function* and a *statement* when it comes to retrieving information from a Lookup Table. Why are there two ways of doing the same thing? Well, there is no easy answer, but there is a subtle but potentially very valuable difference between them.

You can use a Lookup *Function*, which takes the form: **#30 = @Lookup(#25,1)**. Here, the field number inside the parentheses contains the value you want to find a match for in the Lookup Table's Key column, and the second number is the column in the Lookup Table from which the corresponding information is to be retrieved.

If this Lookup function cannot find a match for the Key value, it blanks (clears) the destination field.

Instead of a Lookup *function*, you can use a Lookup *statement* like this: **#30: Lookup(#25, 1, #30)**. Here, the first field inside the parentheses is the Key value, the second number is the column in the Lookup Table from which the corresponding information is to be retrieved, and the third number is the field into which the

information is to be placed.

If a Lookup statement cannot find a match for the key value, it leaves the destination field unchanged.

Let's now take a look at one of the programs in the QAINDEX database that accesses the Lookup Table shown earlier:

```
> #65:
IF #65 = "T"
THEN { #65 = "Tom";
      #70 = "Marcellus";
      Goto #75 };
IF @Len(#65) < 3
THEN { Lookup(#65, 2, #70) ;
      Lookup(#65, 1, #65) }
```

On leaving this field (#65), if it contains just the letter "T," then the rest of the program executes. But if the length of the value ("Tom," in this case) is less than three (such as the initials "BH"), then the program refers to the Lookup Table again, comparing these initials with the Key column and placing the contents of the table's column 2 into field #70 (**Last Name**) then the contents of the table's column 1 (First Name) into field #65, the current field.

As you can see, T.J. uses the Lookup Table for the regulars, but has a special code "T" for Tom, the most frequent contributor of all, who has his own special programming. This illustrates the convenience of the Lookup Table, because without it, you'd need endless repetitive programming statements like these.

```
IF #65 = "MB" Then { #70 = "Bell"; #65 = "Mike" };
IF #65 = "BH" Then { #70 = "Halpern"; #65 = "Bill" };
```

A further great advantage of the Lookup Table is that it is easy to add and change the information in it. If you did not have it, and had to rely on the programming above, every time you wanted to add or remove or edit an entry, you would have to go into the Program Spec and change it there. This could present a severe security issue. Using Q&A's security features, it is possible to lock the programming but leave the Lookup Table editable by users, or certain users under password control.

### Versatility of the Lookup Table

You are not limited to just one use of the Lookup Table. As long as there are no duplicate Key values, you can use the table for many different purposes. The table below shows the QAINDEX Lookup Table again, but further down.

KEY	1	2	3	4
JD	John	Dow		
EY	Erika	Yoxall		
Month Text	Month Num			
=====	=====			
Jan	01			
Feb	02			
Mar	03			
Apr	04			
May	05			
Jun	06			
Jul	07	etc..		

Here, the same Lookup Table is serving a second purpose. T.J. enters the month abbreviated to three characters, and this is displayed alongside the year to identify the issue. This is all very well, except you can't search by month text (*Apr* would be followed by *Dec*). So an extra field is added, *Month #* to store the month number, retrieved from the Lookup Table. As long as T.J. doesn't input initials such as "Jan," the two uses of the Lookup Table coexist nicely.

The programming for this lookup is > #10: **Lookup(#10,1,#100)**, where the **Month #** field is field #100. An equally valid program would be: > #10: #100 = **@Lookup(#10,1)**.

### Restrictions on field names

If you take a look at T.J.'s programming, you might say to yourself "Hey—let's get rid of all these logical field numbers and use field names instead." Good idea, except you'd get a shock if you tried. Q&A allows you to use pretty much anything as a field name, but when it comes to using field names *in programming*, it's much fussier. In short, you can't use field names in programming if they contain anything except letters, numbers and spaces. Even then, they can't *start with a number*. So punctuation marks such as - / \* , . @ # are all out. If you take a look at the field names in QAINDEX.DTF, you'll find several that fall foul of this rule, such as **Author's FName**, **Author (Full Name)**, **Rec. #**, **Month #**, and **DOS 5.0 only**.

If you really want to use field names while retaining the same field labels, there are two ways of doing so. First, you can go to the Field Name Spec (File / Design / Program / Set Field Names) and edit the field names to remove the punctuation characters (for example, change the fields to *Author Full Name*, *Rec No*, and so forth).

The second way is to force Q&A to accept your field names as they are by using what's called the *pound-quote* (US) or *hash-quote* syntax in the Program Spec. You put quote marks around the field name and precede it with the # symbol. In this example, you would use **#"Author's FName"** instead of *Author's FName*.

### Read-only fields

As you add sophistication to your Q&A database, you'll probably find yourself with fields that do not have data typed directly into them. Instead, they are filled in automatically by Initial Values, programming statements, Mass Updates and the like. There is no point to having the cursor stop in a field if there is no need to manually enter or edit its contents. On the contrary, data integrity is better served if the cursor never enters such a field. This is achieved by making such fields Read-only. To make a field Read-only:

1. Select File / Design File / Program a File.
2. Select the database.

Concludes on page 12

# How to 'Stack' Fields In a Report Column

TOM MARCELLUS

This continues to be our most frequently asked-about report formatting technique.



If your reports contain names and addresses, chances are you've run into page width problems when printing them. A typical name, street, city, state, and ZIP code (in five corresponding database fields) averages about 60 characters. When printed in five columns across the page, they take up a lot of report real estate and can leave too little room for other columns.

Q&A users have various remedies for this: They resort to a fly-speck font size to print more characters to the horizontal inch or use landscape orientation to get a wider page—or both. But neither of these workarounds may be necessary if you know how to *stack*—or *wrap*—fields in a report column.

We've covered this stacking technique in past issues, but people continue to ask us about it. (See, for example, "Columns Within Columns in Reports" in the October 1998 issue if you need to stack several report columns.)

Stacking fields is the process of designing the report so that instead of getting output like this...

FName	LName	Street	City	State	Zip
Edgar	Anderson, Jr.	32445 W. Fairview	Santa Ana	CA	92677
William	Jones	2552 Newport Blvd	Costa Mesa	CA	92627
Jennifer	Williamson	23433 Elden Ave	Laguna Beach	CA	95677

... you get output like this:

Name/Address	Birthdate	Size	Balance Due
Edgar Anderson, Jr. 32445 W. Fairview Santa Ana CA 92677	5-2-1962	Large	\$345.00
William Jones 2552 Newport Blvd Costa Mesa CA 92627	10-11-1949	Small	\$2344.50
Jennifer Williamson 23433 Elden Ave Laguna Beach CA 95677	12-11-1958	Medium	\$234.45

In the second example you can fit the entire name and address *plus three more columns* in less width than the first example that contains *only* the names and addresses.

To stack a report column, you need to force Q&A to print the fields *below* one another instead of *after* one another in the usual across-the-page format.

The way is to do this is to make the stacked fields invisible at the Report Column/Sort Spec, then format

them using a special Derived Column formula. (For Derived Columns, press F8 at the Column/Sort Spec.)

Figure 1 shows a sample Report Column/Sort Spec for field stacking. The name and address fields all include the "I" (invisible) code. In this example, the LName field also contains the AS code so the report will be sorted alphabetically by last name.

Here are the three derived columns that do the trick:

Heading:  
Formula: @Text(25," ")  
Column/Sort Spec: 35,I

Heading:  
Formula: @Chr(10) + @Chr(13)  
Column/Sort Spec: 40,I

Heading: 25:Name/Address  
Formula: #5+" "+#10+#35+#15+#35+#20  
+" "+#25+" "+#30+#40  
Column/Sort Spec: 45,C

The first derived column's @Text(25," ") formula creates 25 blank spaces. This column is invisible because you don't want it to print.

The second derived column's @Chr(10) + @Chr(13) formula creates a carriage return/line feed combination. This column is also invisible.

The final derived column does all the assembly for printing the stacked column. Notice that its Heading is 25:Name/Address. This limits the column to a width of 25 and assigns Name/Address as the column heading. Its formula prints the first name (column #5 from the Column/Sort Spec), adds a space, prints the last name, then follows that with the value from column #35.

Column #35 contains 25 blank spaces. When this is appended to the first name/last name value in column #45, it forces Q&A to wrap the line because the column

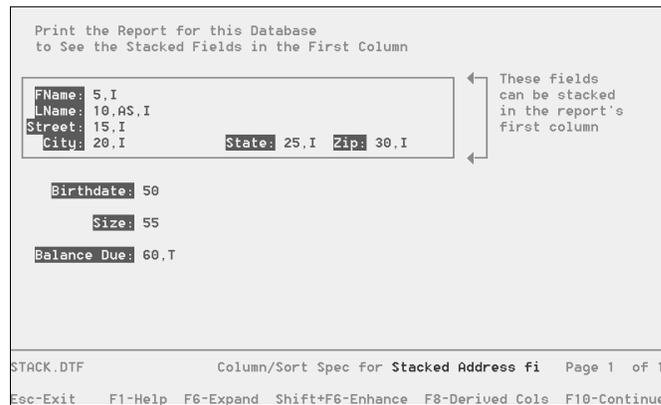


Figure 1. Sample Column/Sort Spec for a stacked-field report.

width is limited to 25. (Depending on the widths of the stacked fields and the lengths of the values in them, you might have to adjust the 25 in the first derived column's @Text formula and the third derived column's Heading spec to achieve the correct wrapping.)

The formula in column #45 continues, printing the street address on the second line below the name, then the city, state, and zip on the third line. The technique works because Q&A counts *trailing* spaces (for the purpose of breaking a line) and removes any *leading* spaces.

The final reference in column #45's formula is to column #40, which contains a carriage return/line feed combination. This is optional. What it does for the sake of appearance and readability, is insert a blank line between each name/address block whether or not *Skip Line at Column Break* is turned on in *Report Global Format Options*. If you print the report to Screen, these two characters will show up as "lucky charms." But you'll get the desired effect when printing to paper.

So there you have it, a way to stack fields—any group of fields—in a report column. Familiarizing yourself with this technique can be a bit challenging at first, but it'll become second nature in no time at all. And it makes for really nice-looking reports.

*The sample Stack.dtf database with the report is included in this month's download file for Online Edition subscribers.*

## Programming... cont'd from page 10

3. Select Read-only Fields to display the Read-Only Spec.
4. Type an **R** into each field you want to make read-only.
5. Press **F10** to save the Spec and continue.

This way, during Add Data and Search/Update, the cursor will skip over the Read-only fields, though you will still be able to search them using the Retrieve Spec. Read-only fields can only have their contents modified by programming, Mass Updating and other indirect means.

You don't have to be proficient at programming to make your Q&A database work harder for you. Don't be afraid to experiment. It shouldn't be difficult to find uses for the Lookup Table that will save you data input effort. Once you start programming, the door is open for you to take your databases to new heights and to get more from *The Quick Answer* each month.

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September 2000 Issue

# First Class