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# Fast Hot-Key Searches Across Fields

TOM MARCELLUS

How's this for convenience? Simply enter one of four different retrieval parameters at a prompt, and Q&A searches four fields in your database for the matching record.

PICTURE a busy dental or medical office where staffers need the option to retrieve patient records four ways. If they know the patient's ID, they usually search on it. But they might need to search on the patient's last name, phone number, or Social Security number as well.

With four possible search parameters on four different fields in the database, users have to navigate to the Retrieve Spec for PATIENTS.DTF, move to the pertinent field, enter the search parameter, then press F10. This takes too many steps, too much time, and invites goofs. It would be far easier if they could simply press a hot-key to display a *general* search prompt, enter a last name, patient ID, phone number, or Social Security number, and have Q&A fetch the record. (See **Figure 1**.) I'll show you how you can add this capability to a database in a few minutes. All it takes is one new macro—you don't need a custom menu, and you don't have to modify anything.

To illustrate the technique, assume the PATIENTS database contains the following fields formatted like this:

```
Field       Format
Last Name   Text, 15 or so characters
Patient ID  Text, up to six alphanumeric characters
Phone       Text, field template ###-####
SSN         Text, field template ###-##-####
```

*Continues on page 3*

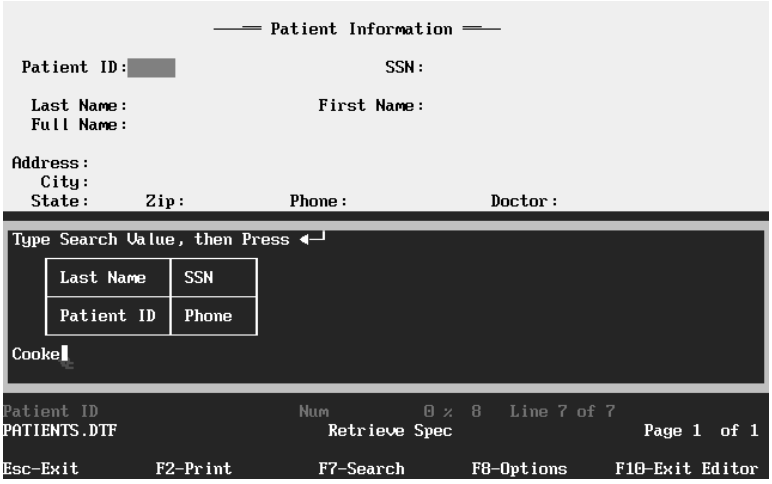


**Figure 1.** A hot-key macro displays your custom prompt. You can enter the last name, patient ID, phone, or Social Security number, and Q&A displays the matching record. Here, a search is about to be performed on patient "Cooke."

The Quick Answer™
*The Independent Guide to Q&A® Expertise*

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# Editorial

## Tom Marcellus

THE accent this month is on retrieving information from your databases—or as **Dave Dvorin** puts it, "getting the stuff out." Whether you're running a mail merge, mass update, batch post, or report—or just want to view or update some records—chances are you'll need to fill out a Retrieve Spec as part of the process. Learn the ins and outs of using the Retrieve Spec to select your records (Dave shows you the ropes), and you'll enjoy faster data access no matter what kind of stuff you're after.

For more complex searches, though, you need to go beyond the Retrieve Spec. Suppose your usual practice is to search on the last name, customer ID, phone, or Social Security number, using whichever of the four you have on hand. Instead of dealing with four Retrieve Spec possibilities, why not set up a hot-key prompt that lets you type in *any* of the four search values? I'll show you how to add this capability to your database two ways: one that's good for smaller databases of a few thousand records or less and another for larger files.

You used to need a third-party utility to make your PC auto-dial phone numbers from Q&A database records. Now, by combining new Q&A 5.0 features with old DOS commands and your modem, you get the convenience of auto-dialing without specialized software. **Bill Halpern** shows you how.

With some applications, you need to control which macros are available. You might need an exclusive set of macros for Database A, a different set for Database B, and so on. Q&A 5.0 doesn't include such a feature, but you can get the functional equivalent with Userselect and @Macro. I'll show you how.

The most underused Q&A for DOS feature is its Modify Font File facilities. But you don't need any expert knowledge of font files to use these facilities to simplify font management. Find out how **Alec Mulvey** does it.

If you've used Quicken, you probably know you can press the "+" (plus) and "-" (minus) keys to increase and decrease number, money, and date fields one unit at a time. **Colin Coady** added this capability to his Q&A database, and you can, too. **QA**

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# Fast Hot-Key Searches . . .

*Continued from page 1*

To get hands-on experience with the technique, go ahead and create the database, define the templates for the Phone and SSN fields, and add a few test records.

## A multipurpose macro

**Listing 1** shows an Alt-P macro that starts at the Q&A Main menu and prompts you to enter your choice of four search parameters—with or without dashes in phone and Social Security numbers—to retrieve the record you're after. Your macro doesn't have to be named Alt-P.

---

**Listing 1.** An Alt-P macro (formatted for publication) that creates a custom prompt for the search parameter and accepts a last name, patient ID, phone number, or Social Security number. The lines are numbered for illustration only. Don't include them in your macro. (See the sidebar, "Macro Issues."):

```
 1. <begdef><altp><name>"<caps,>altp<caps.>"<vidoff>
 2. <esc>y<esc>fs<capsf4>PATIENTS<enter>
 3. <f6>Type<sp>Search<sp>Value,<sp>then<sp>Press<sp>
 4. <altf10><ctrlq>ƒŸ<enter>
 5. <sp><sp><sp>┌──────────┬──────┐<enter>
 6. <sp><sp><sp>│ Last Name │ SSN  │<enter>
 7. <sp><sp><sp>├──────────┼──────┤<enter>
 8. <sp><sp><sp>│ Patient ID │ Phone │<enter>
 9. <sp><sp><sp>└──────────┴──────┘<enter>
10. <wait><enter><vidoff>
11. <home><f11><end><f10><f3><home><home><f10>
12. {Last<sp>Name<sp>=<sp>"<f12><end>"<sp>
13. OR<sp>SSN<sp>=<sp>@Num("<f12><end>")<sp>
14. OR<sp>Patient<sp>ID<sp>=<sp>"<f12><end>"<sp>
15. OR<sp>Phone<sp>=<sp>@Num("<f12><end>")}
16. <f6><f10><enddef>
```

Following are the steps the macro performs. Refer to the line numbers in Listing 1:

1. Escapes to the Main menu if not already there, and displays the PATIENTS Retrieve Spec. (Line 2.)

2. "Presses" F6 to expand the first field, and types in the custom search prompt shown in Figure 1. (Lines 3 through 9.)

3. Pauses for input, then turns the video off (Line 10.)

4. Copies the search parameter to the Clipboard, then deletes everything in the field. (Line 11.)

5. Creates the following conditional retrieval expression by pasting the parameter into each of the expression's four parts. (Lines 12 through 15):

```
{Last Name = "parameter" OR SSN = @Num("parameter") OR
Patient ID = "parameter" OR Phone = @Num("parameter")}
```

6. Closes the expanded field and runs the search. (Line 16.)

## So how does it perform?

Searching with an expression rather than a literal value can take longer, but I wasn't displeased with Q&A's performance. With a 5,000-record database and modest 486DX2/50Mhz PC, Q&A found the matching record instantly when it was near the front of the database, and within 10 seconds if it was at the end. As you might expect, the fewer OR conditions in the expression, the faster the search.

In an expression-based search, Speedy fields are useless since Q&A evaluates each record until it reaches one that returns true. So the closer the record is to the front of the database, the faster Q&A finds it.

If your database contains many thousands of records, or if the records are large or you're working on a sluggish PC or network, you might find the wait unacceptable. Run a search expression that finds records at different

## Macro issues

So you could more readily see how the Listing 1 macro creates the prompt, I altered the line lengths and replaced some of the <sp> commands with actual spaces. Your custom prompt doesn't have to be this elaborate, but you can use the ASCII graphics characters in Appendix H of the *Q&A 5.0 User Guide* to make it so.

You might find it easier to compose the macro in Write—using Line Draw to make the box—then paste it into your macro file via the Clipboard. Spaces won't affect the macro, but Q&A will replace them with <sp> commands when you save your next macro.

The <altf10><ctrlq> command in line 4 creates the solid left arrowhead for the "press ↵" part of the prompt.

The macro begins with <esc>y<esc> to start at the Main menu. This lets you immediately rerun the macro should your search turn up the wrong record or no record.

The @Num function strips out any dashes in a phone or Social Security number since they're part of the field templates but not part of the values.

A possible side benefit of this macro is that if you press Enter at the prompt without typing a search parameter, Q&A will retrieve the records where any of the four fields are blank.

With Q&A running in full screen mode under Windows, the macro displayed the custom prompt much faster with video *on* than off—the opposite of what you might expect. With Q&A running in DOS, though, the prompt displayed faster with video off. Go figure.

positions in the database and see how it performs on average. If the lag is tolerable, you're all set.

## If you need faster searches

Because an expression-based search will run too slow on a large database, you'll have to modify the technique to search on literal Speedy values instead. (I'm assuming that because the four fields are frequently searched, you've made them Speedy.) All it takes are these changes to the Listing 1 macro to boost performance:

1. Instead of having the macro create a compound retrieval expression that works in any field, have it tab to the first search field, press F12 to paste the parameter from the Clipboard, tab to the next search field, press F12 again, and so on until the four fields contain the same parameter.

2. Have the macro press Ctrl-F7 for the Search Options box and press down arrow then right arrow to select *Any*. This tells Q&A to select the records that meet at least one of your restrictions, which is what you're after.

This literal search technique changes the rules somewhat:

- You can use retrieval codes, such as starts with, ends with, and contains. You can enter a portion of a last name—*Jacobs..*, for example—when you don't know if it's Jacobs*o*n or Jacobs*e*n.

- If you redesign the database, and the four fields aren't where the macro expects them, searches will bomb. (You'll have to edit the macro and add or remove Tabs to account for any relocated fields.) Searches will also fail if you enter a phone or Social Security number with dashes. The expression method can strip them out. You don't have that option with a literal search.

- Unlike the expression method, this one won't work if, for example, the Patient ID field is formatted for numbers and you try to run a Last Name search.

- If you don't need a custom prompt (the macro's pause prompt will still appear), you won't have to open and close the field editor. Instead, have the macro pause at the Last Name field, copy the search parameter to the Clipboard after you've entered it, then paste it into the other three fields. **Listing 2** shows a bare-bones Alt-P macro that does the trick.

**Listing 2.** A macro without a custom prompt that finds the record based on any one of four search parameters. This macro assumes the Last Name field is the third on the form, Patient ID the first, SSN the second, and Phone the 10th. (See Figure 1.)

```
<begdef><altp><name>"<caps,>altp<caps.>"<vidoff>
<esc>y<esc>fs<capsf4>PATIENTS<enter><tab><tab>
<wait><enter><vidoff><f11><capstab><capstab><f12>
<tab><f12><tab><tab><tab><tab><tab><tab><tab><tab>
<f12><ctrlf7><dn><rgt><f10><enddef>
```

### QA

Tom Marcellus is editor of *The Quick Answer* and author of *PC World Q&A Bible*, published by IDG Books. His QuickClick Calendar Plus—a time- and activity-tracking database for Q&A 5.0—along with his QuickClick RecordFinder for Q&A 5.0, are available from Marble Publications, publisher of *The Quick Answer*.

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Quick Tip

# Avoid "Comma" Bug in Merge Documents

DOS

If you've ever programmed a merge document to look up address information in an external file, you've probably discovered that Q&A adds a comma to the ZIP code. For example, if the Zip Code field in the external record contains *18852*, Q&A will print *18,852* in the merge document. The bug applies to any numeric values retrieved by @XLookups in merge documents.

An easy fix is to edit your merge program to concatenate the ASCII bell character ("•") with the ZIP code. The special character won't print, but will force Q&A to treat the ZIP code as a text value. You can type the character by pressing Alt-F10, then pressing Alt-7 on the numeric keypad. Your merge document expression will then look something like this:

```
Zip Code: *pg { @XLu("CUSTINFO", CustNo,
          "Customer No", "Zip Code") + "•" }*
```

### QA

Jeff Nitka

# Modify and Combine Font Files

Alec Mulvey

If you use fonts in your documents and reports, Q&A's Modify Font File feature, along with a few other tricks, can make assigning and applying fonts easier than you might have thought.

WIN

**WHEN** you choose Modify Font File from Q&A's Utilities menu, you're warmly greeted by the warning message that says *This Utility is for Experienced Users Only!* The warning is valid because the utility requires knowledge of typefaces and the like. But there are some relatively simple things you can do to make Q&A easier on you and your users.

## Why modify font files?

To an inexperienced user, esoteric font descriptions such as LJet III/II/D/P CGTimes 12Med PC8 are just gobbledygook. What they'd prefer to work with are font designations like these:

```
Times
Courier 10
Univers
Gothic 12
```

And this is what you can give them. If all the fonts you need aren't in a single Q&A font file, I'll show you a trick that lets you combine them.

Suppose you have a LASER1.FNT font file containing 100 font descriptions, but you're interested in only 15 of them. You have another font file, LASER2.FNT, with 95 font descriptions, and you care about only 25 of them. What you'd like to do is create a single font file—let's call it MYFONTS.FNT—containing the 40 font descriptions. Here's what you do.

First, backup the two font files to a different directory.

Next, choose Utilities / Modify Font file. Specify the first file, LASER1.FNT, and the Modify Font Description screen for the first font description in the file will appear (see **Figure 1**).

At the bottom of the screen, you'll see the total number of font descriptions in the file (213 in Figure 1). You can press F10 and F9 to scan forward and backward through them.

The usual Q&A list management features are available, but with different keystrokes. Pressing F3 deletes a font description, Shift-F5 copies the current one, and F8 adds a new one. Heed Symantec's warning if you're contemplating changing the printer control codes or character widths, but there's still much you can do with no special skills.

## Changes you might wish to make

You can change the name of a font description simply by editing it in the Font Name field. For example, you might want to change *CG Times Med* to just *Times*. Bear in mind that for a scalable font, such as Times or Univers on an HP LaserJet III or greater, you don't specify a font size at this screen. The user does that at the Font Assignments screen. All you're doing here is preparing the list of fonts available at the Font Assignments screen.

You can press F3 to delete the fonts you won't use (or prevent others from using.) These might even be the majority of the fonts listed. Many of the fonts are available

*Continues on page 7*

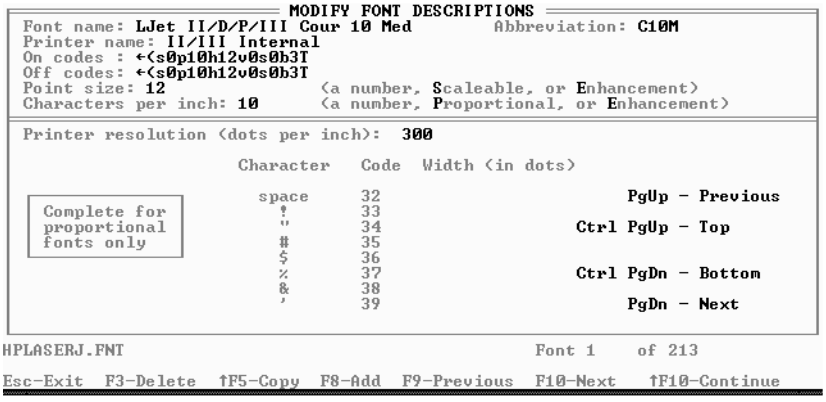


**Figure 1.** The Modify Font Description screen.

# @Help

DAVE REID

## Calculate the Percentage per Customer

**I have two databases I'd like to use in a report. The first one, CLOCK.DTF, contains a record for each employee for each day worked. It includes clock-in and clock-out times and calculates the number of hours worked that day. The other database, TICKETS.DTF, stores service tickets entered daily by employees. Each ticket includes the customer number and hours worked. I'd like to create a report that tells me what percentage of an employee's daily hours is spent on each ticket. I suspect it's possible, but I don't know where to begin.**

Robert Kreiger, Agoura Hills, California

You can create the report using a derived column, but you'll need to modify the CLOCK database and add a field (you can name it KeyVal) that combines the employee number with the clock date. You can program KeyValue like this:

```
KeyVal: #1 = Employee Number + @Str(Clock Date)
```

You can use the same program to Mass Update all your existing CLOCK records.

Next, create a TICKETS.DTF columnar report. Fill out the Column/Sort Spec like this:

```
Employee Number: 1,AS,CS
Ticket Date: 2,AS
Customer Number: 3
Hours Worked: 4
```

Press F8 to switch to the Derived Columns screen and create the following derived column:

```
Heading: Percentage
Formula: #4/@XLookup("CLOCK",#1+@Str(#2),"KeyVal",
         "Hours for Day")*100
Column Spec: 5,ST,F(N0)
```

The derived column's formula divides the Hours Worked on each ticket by the Hours for Day value from the CLOCK record for the employee for that day. The result is multiplied by 100 to get a percentage, which is formatted to 0 decimal places for readability. The "ST" in the Column Spec prints each employee's subtotal for the day.

## Conditional Addresses

**I'm an assistant at a small Florida church where some members attend only during the winter months when they're here. Because of this, we store both permanent and local addresses in our database. If there's a second (local) address, we also fill in a pair of date fields with the starting and ending dates that the member will be at that address. A problem occurs when we need to mail merge to the entire congregation. We can't easily tell Q&A who is already in town for the winter and who has yet to arrive. Is there is a way to tell Q&A to do this based on the two date fields and merge the correct address?**

Betty Van, Marco Island, Florida

Q&A Write for Windows includes a powerful conditional mail merge feature that's well suited to your needs. Begin by creating a merge document as you normally would with an address block something like the following:

```
»First Name« »Last Name«
»Address«
»City«, »State«  »Zip«
```

You can now modify the block to conditionally use different address fields. Place the cursor at the beginning of the Address line, and press Ctrl-Shift-M—the Mail merge key. Instead of choosing a field from the list, click on the Programmed Field button. When the Program Helper dialog box appears, type the following in the Formula box:

```
IF StartDate <= @Date AND EndDate > @Date THEN
```

Click OK to insert the conditional statement into your document. Again, press Ctrl-Shift-M, click on the Programmed Field button, and type the following:

```
ELSE
```

Press Enter, move your cursor to the end of the City-State-Zip line, and press Ctrl-Shift-M once more. This time, type the following:

```
ENDIF
```

Click OK. Your document should now look like this:

```
»First Name« »Last Name«
»IF StartDate <= @Date AND EndDate > @Date
    THEN«»ELSE«»Address«
»City«, »State«  »Zip«»ENDIF«
```

To finish the document, you'll need to insert the alternate address fields between the conditional check and the ELSE marker. The final address block should look like this:

```
»First Name« »Last Name«
»IF StartDate <= @Date AND EndDate > @Date
    THEN«»Alt Address«
»Alt City«, »Alt State«  »Alt Zip«»ELSE«»Address«
»City«, »State«  »Zip«»ENDIF«
```

When you merge print the document, Q&A will check each record's Start and End dates and print the appropriate address.

## Documents Too Spacey

**I keep my notes from my speaking engagements in Write documents. When a document has been on disk for a while—six months or more—and I open it to make some changes, I've noticed that some of the words have two or more spaces between them. There isn't any pattern to the extra spaces. I end up spending nearly an hour cleaning up and reformatting each document before I can reprint it. Where do these unwanted spaces come from?**

*Ron Milts, Yucca Valley, California*

The formatting of your documents might be changing because of the way you originally saved them. Pressing Shift-F8 saves a document to Q&A format, which preserves the formatting. Even if the file became corrupted, you wouldn't see randomly occurring extra spaces between words. It sounds like you printed them to disk with Justify set to Yes, causing Q&A to insert spaces between words to force each line to extend to the right margin. This would give you an apparently random pattern of extra spaces between words when you later displayed the document. **QA**

Dave Reid is a Symantec senior support analyst providing second- level assistance to the technical support representatives. He's also the coauthor of *The Q&A 4.0 Wiley Command Reference*, published by John Wiley and Sons, and works as an independent Q&A consultant. PO Box 12083, Eugene, OR 97440.

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

# Modify Font Files . . .

*Continued from page 5*

only when a particular font cartridge is installed, such as fonts beginning with C01- or T-. You can delete the bold, italic, and bold italic variants if you wish. Users can still apply these as font enhancements, though there's no guarantee they'll get perfect results under all conditions.

You can change the font's abbreviation—what you see on the status at the bottom of screen when the cursor is on enhanced text. The default abbreviations are precise, but confusing. An abbreviation can be up to six characters, though the manual says four.

So, you continue to press F3 to delete the fonts you don't want, until you're left with the 15 you do. You can then press Shift-F10 to save the font file.

Now go through the same procedure with the LASER2.FNT font file, and you'll have the two font files reduced to only the fonts you want.

You can now employ the trick described by Roger Skidmore on page 9 of the March 1995 *The Quick Answer*.

In order to consolidate the two font files, you use the DOS copy command with the /B switch. (The "B" stands for binary.) So, exit to DOS, change to the subdirectory were the two font files are located, and type the following command:

```
COPY/B LASER1.FNT + LASER2.FNT = MYFONTS.FNT
```

If you have several font files that begin with "LASER," you can use this command to combine them:

```
COPY/B LASER?.FNT MYFONTS.FNT
```

By using a utility that Symantec could easily have omitted from Q&A without serious consequences, you can give users a slimmed-down, easy-to-comprehend list of a few fonts—the ones you want them to use. **QA**

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The Quick Answer

## The Program Spec

# Pass the Parameters, Please

JEFF NITKA

MOST Q&A functions require you to supply the appropriate parameters. For example, @Len(*x*) expects parameter *x*, but what can *x* be? Parameters aren't always just simple text values or field names, they can be huge complex expressions that *evaluate* to parameters on which functions can act.

Here's an example of how far afield this can go:

```
Xpost("VAR", 1, "Page", @XLu("VAR", @Mid(Equation,i,1)
      + ".", "Symbol", "Class"), "Token")
```

This statement concatenates a period and the *i*th character of a text field named Equation, finds its corresponding Class, and XPosts the Class to the Token field in the VAR database.

The statement could have been written as follows, but two fields would be required to temporarily store the values returned by @Mid and @XLu:

```
#1 = @Mid(Equation,i,1) + ".";
#2 = @XLu("Var", #1, "Symbol", "Class");
Xpost("Var", 1, "Page", #2, "Token")
```

Unless you'll need those values later on, why store them when you can pass them directly to the function?

How far can you go with this? Most Q&A functions will accept most any parameter. @Width and @Help are exceptions—they require field names. Also, XLookup, Userselect, XLookupr, and Lookup statements require as their final parameter a field reference, such as a field name, a field ID number, or the @Field function.

Following is what you might call a "formula" for acceptable expressions. The "|" character means OR, and the arrow ( "->" ) means *can be any of the following symbols*. *Exp* stands for expression:

```
Math_Operator    -> ( + | * | - | / )
Logical_Operator -> ( AND | OR )
Comparison_Op    -> ( > | < | >= | <= | = | <> )
Unary_Operator   -> ( + | - )

Exp  -> Exp Logical_Operator Exp
      | Exp Comparison_Op Exp
      | Exp Math_Operator Exp
      | Unary_Operator Exp
      | NOT Exp
      | ( Exp )
      | Field name
      | Field ID number
      | Q&A function with arguments ( Exp, Exp, ... )
      | Q&A function without arguments (@Add, @Update)
      | Number
      | Text
      | Money Value
      | Date
```

Here's an example. @Xlookup's structure is *@XLookup(Exp, Exp, Exp, Exp)*, so is following acceptable?

```
@XLookup(@Fn + "", @Add, "x#" + @( Ptr ), "Code")
```

The answer is yes. Take just the first parameter. It can be an expression, and an expression can be *Exp Math_Operator Exp*. A Math_Operator can be a plus sign, so the starting *Exp* can be a Q&A function with no parameters, and the ending *Exp* can be a text value. The blank text value ("") is still text—it's simply empty. Accordingly, the derivation of the parameter is this:

```
Exp -> Exp Math_Operator Exp
Exp -> (Q&A function without arguments) Math_Operator Exp
Exp -> (Q&A function without arguments) + Exp
Exp -> (Q&A function without arguments) + Text
Exp -> @Fn + Text
Exp -> @Fn + ""
```

According to the "formula," *@Fn + ""* is an acceptable parameter in an @XLookup function. It wouldn't make sense to add the empty text value, but Q&A's Program Spec accepts it.

The Program Spec will even accept:

```
#1 = @XLu("","","","",""),
```

but you'll get an error message saying *Cannot open file: C:\QA5\.DTF. Q&A cannot complete your lookup function.*

**QA**

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The Quick Answer

Q&A Lite

# Getting the Stuff Out

DAVID DVORIN

Learn the ins and outs of using Q&A's Retrieve Spec to select your records, and have the power of fast data access at your fingertips.

A cornerstone of Q&A's power is the ease with which you can access and manipulate the data you've spent untold hours entering into your databases. Whether you need to select records for reports, to merge with documents, to mass update—or if you're simply searching for records to review or update—the common denominator to all such tasks is the Retrieve Spec. Let's start with Retrieve Spec basics, then move on to explore some of its more advanced capabilities.

## What is a Retrieve Spec?

A Retrieve Spec consists of just these two things:

- The form you use to type in your record retrieval parameters or commands
- The parameters themselves.

The Retrieve Spec form is a replica of the form you use for data entry. The parameters or commands you type into it tell Q&A which record or records to retrieve for the task you want to perform. The easiest way to use a Retrieve Spec is to move to the field that contains the value (information) you want to search on, type the value, and press F10 to initiate the search.

Q&A automatically displays the Retrieve Spec screen during any operation that includes record selection, such as Search/Update, Mass Update, Remove Selected Records, Copy Selected Records, Export, Reports, and Mail merge.

The Retrieve Spec is such a frequently used tool that understanding it thoroughly pays dividends in short order.

## Filling in a Retrieve Spec

To properly fill in a Retrieve Spec and get the records you want, you need to know the meanings of the various symbols associated with using it (see **Figure 1**). Let's start with the easiest—a value in the database.

Suppose you want Q&A to find and display the "Jones" record in the CUSTOMER database. Assuming the database includes a Last Name field, and at least one record with "Jones" in that field, choose Search/Update from the File menu, and enter CUSTOMER as the database to search. Move to the Last Name field and type in "Jones" (without the quote marks), press F10, and Q&A will display the first record it finds with "Jones" in that field.

But there might be 20 Joneses in the database, and you want to view only the "Mike Jones" records. In this case, you type "Mike" in the First Name field, "Jones" in the Last Name field, then press F10. Already, you see, you're restricting your search parameters.

In an ORDERS database, you could type "300" in the Order Total field, and press F10 to have Q&A display all the orders whose total is $300.00. By entering a valid date such "3/1/95" (in any date format Q&A understands) in a date field, Q&A would display the records that have March 1, 1995, in the Date field.

## Expanding a search

You can search for records where the value might be one thing or another. This is called an OR search. For example, if you entered "Jones; Smith" (without the quotes), Q&A would display the records where the field contains *Jones* or *Smith*. In other words, you'd get all the *Jones* records along with all the *Smith* records. The semicolon tells Q&A you want an OR search.

For Keyword fields with entries already separated by semicolons, you must use the "&" character to specify multiple parameters. For example, typing "&Jones; Smith" tells Q&A that the Keyword field contains "Jones and Smith."

To have Q&A retrieve records whose entry in a field is greater than the value you specify, use the greater-than symbol (">"). For example, typing ">Jones" retrieves the records where the value is higher in the alphabet than Jones; typing ">300" retrieves the records where the value is greater than 300 (or $300.00 in a Money field); and typing ">3/1/95" retrieves the records where the date is after March 1, 1995.

For text values, Q&A compares the letters starting

from the left. If a letter comes later in the alphabet, Q&A considers it to be greater. Conversely, the less-than sign ("<") tells Q&A to retrieve all the records earlier in the alphabet than "Jones," less than 300, or earlier than March 1, 1995.

## Special codes

Another Retrieve Spec code is the equals sign ("="). When you use it in conjunction with the greater-than or less-than symbol, it means *greater than or equal to*. For example, ">=Jones" means greater-than or equal to Jones. In contrast, "<=Jones" means less-than or equal to Jones. Typing "=Jones" or simply "Jones" gives the same result. To have Q&A retrieve the records where that field is empty or blank (equal to nothing), use the equal sign by itself.

The slash character ("/") means *not*. You can use it in conjunction with the special Retrieve Spec characters I've already covered. For example, "/Jones" tells Q&A to retrieve the records that don't have *Jones* in the field. The "/=" code retrieves the records where the field is *not* empty.

You can use the question mark ("?") as a wild card character to replace any single character. For example, typing "N?w" would retrieve the records with *New* or *Now* in the field. You can use the wild card anywhere in the word—at the beginning, at the end, or in the middle of the value. Q&A's searches aren't case-sensitive. Accordingly, whether you search on "MA" or "ma," you'll get "MA," "Ma," "ma," and "mA" records.

Two dots or periods ("..") is a powerful retrieval code. Also a wildcard symbol, it represents any sequence of characters, and you can place it at the beginning, middle or end of the value you're searching on. For example, "Jo.." retrieves the records where the value begins with *Jo*; "..es" retrieves the records that end with *es*; and "Jo..es" finds the records whose values begin with *Jo* and end with *es*. Moreover, "..n.." retrieves the records where the text field contains *n* anywhere in the field.

When you use two dots in conjunction with the greater-than or less-than characters, it means *and*. For example, if you wanted to include in a report only the invoices between April 1, 1996, and June 30, 1996, you could use >=4/1/96..<=6/30/96 in the Date field at the Retrieve Spec. This tells Q&A: Find the records where the date is between April 1, 1996, and June 30, 1996, inclusive.

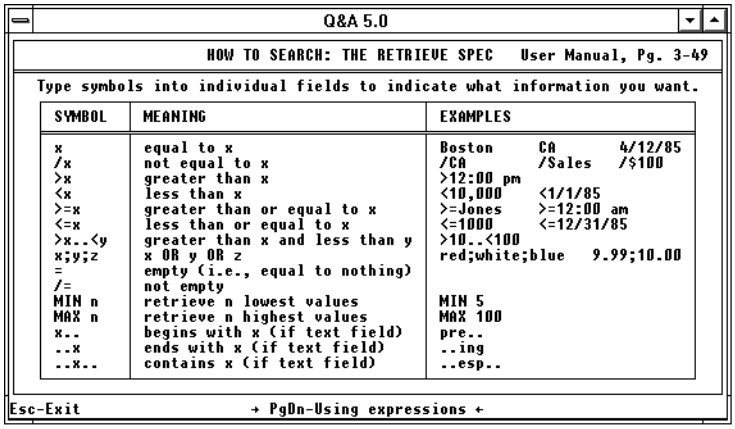


**Figure1.** The first page of Q&A's Retrieve Spec help screen showing the special characters and format you use to select your records.

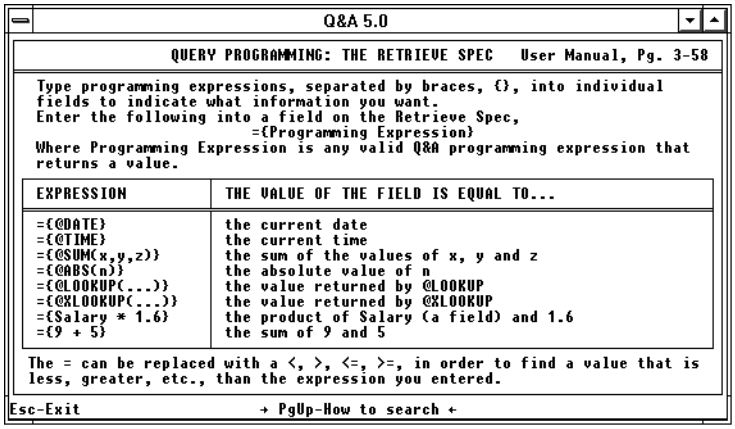


**Figure2.** The second page of Q&A's Retrieve Spec help screen showing examples of query expressions you can use to select your records.

## Going to extremes

MAX *n* and MIN *n* (where *n* is a number) retrieves the records with the maximum and minimum *n* values. For example, "MAX 10" in an Order Total field retrieves the 10 records with the highest order totals. Similarly, "MIN 3" returns the three records with the lowest Order Totals. You can also use MAX and MIN with the other field types (character and date) as well.

## A tug on the ear

Q&A includes a special soundex ("sounds like") command that can come in handy when you don't know the exact spelling of the value you're searching on—a person's name or a city, for example. To use soundex, simply precede the search value with the tilde character ("~"). This way, typing "~Alan" will retrieve Alan, Allan, and Allen.

## Searching for the wrong stuff

You can further expand Q&A's search and retrieval capabilities by using the right bracket

("]") character. Imagine a text field that contains different entries in a number of records. Then imagine the field's data type (format) was changed from text values to number values, and from that point on, all subsequent entries were numbers. To search such a field for a text value, you can precede the search parameter with the right bracket—"]Jones," for example. Without the "]" character, Q&A would display a *Not a valid Retrieve Spec* error message because you're attempting to search for a text value in a field that's supposed to contain numbers.

## Searching for the special characters

With all these special characters available, how do you search for them if they're part of the field value? The answer is to use the \ (backslash) character. Using it, you can search for literal double dots, question marks, or any other reserved Retrieve Spec character. To search for the backslash character itself, simply use another backslash, like this: "\\".

## Programming a retrieval

You can also use programming expressions at the Retrieve Spec to find or include specified records (see **Figure 2**). A Retrieve Spec programming expression should be prefaced by an equal sign and opening French brace ("={"), followed by the expression, then a closing French brace ("}"). The expression you use must return a value, because Q&A evaluates the expression on each record in the database and uses its result to determine whether the record qualifies for inclusion. Here are few examples of Retrieve Spec programming expressions:

- ={9 + 5}—the sum of 9 and 5. (A "#" sign in front of the numbers would tell Q&A to include the records where the field was equal to the sum of field #9 and field #5.)
- ={@Date}—the current date.
- ={@Sum(x,y,z)}—the sum of the values of x, y, and z.
- ={@Abs(n)}—the absolute value of n.
- ={@Lookup(*parameters*)}—the value returned by the @Lookup.
- ={@XLookup(*parameters*)}—the value returned by the @XLookup.
- ={SubTotal + (SubTotal * @Lookup("TaxRate", 1))}—the sum of SubTotal and the tax based on a tax rate in the Lookup Table.

You can replace the equal sign with the "<", ">", "<=", or ">=" characters to find records with values that are less-than, greater-than, less-than, and equal to, or greater-than or equal to the result of the expression.

# What Q&A 5.0 Brings to the Table

Q&A 5.0 incorporates the Field Editor into the Retrieve Spec. In Q&A 4.0, pressing F6 expands the field (at the bottom of the screen), giving you room for up to 128 characters. In contrast, Q&A 5.0 gives you a wide-open Field Editor that can contain a retrieval expression (or list) of up to 32K, as well as provide the same word-processing functionality you might use during data entry in the Field Editor or when programming a field.

## When you need to bend the rules

By default, the restrictions you type in the Retrieve Spec tell Q&A to include the records that meet all the restrictions. Thus, for example, if you type "2/15/96" in the Date field, and ">100" in the Order Amount field, Q&A will retrieve the records where the date is February 15, 1996, and the Order Amount is greater than $100.00—a record would have to meet *both* requirements to be included.

You can change this rule by pressing Ctrl-F7 at the Retrieve Spec. A dialog box will appear allowing you to change the default to any of the following rules:

- Include the records that *do not* meet *all* the restrictions.
- Include the records that *do not* meet *any* of the restrictions.
- Include the records that *do* meet *any* of the restrictions.

Though the difference in the wording of these three rules might seem subtle, Q&A's resulting actions will differ significantly. In the first case, Q&A will exclude any records that meet *all* of the restrictions; in the second case, Q&A will exclude any records that meet *any* of the restrictions; and in the third case, Q&A will include records that meet any of your restrictions.

## Reusing a Retrieve Spec

Like most Q&A Specs, you can save your Retrieve Specs for future use. Doing so can be a great time-saver,

*Continues on page 13*

# Create an Automatic Phone Dialer

WILLIAM HALPERN

You don't need a third-party utility to make your PC auto-dial phone numbers from your Q&A database records. Just follow these easy steps.

MANY Q&A for DOS users have longed for an auto-dialer—a utility that can dial the telephone number in a displayed database record. With earlier versions of Q&A, you needed a compatible third-party program to do it. Now, by combining new Q&A 5.0 features with old DOS commands, you can have the convenience of auto-dialing without adding or learning new software.

## What DOS can do

The DOS commands you take advantage of are Echo and Redirection. It might sound complicated, but if you try the following, you'll see how easy it is. Find out which Com port your modem is attached to. Then, at the DOS prompt, enter this command:

```
Echo ATDT 555-1212 > Com2:
```

This command makes DOS redirect the standard attention (AT) command to the modem on Com2, telling it to dial (using the tone signal—DT) the number 555-1212. Substitute for *555-1212* the phone number you want to dial, and change *Com2* to your modem's serial port. (If you have pulse rather than tone dialing, substitute ATDP for ATDT). Your modem should grab the phone line and dial the number.

Once the modem has control of the line, when you pick up the receiver you won't get a signal through the phone until you tell the modem to release the line (while you still have the receiver off-hook). You do this with a second DOS command:

```
Echo ATH > Com2:
```

If you have the receiver off-hook, control of the phone line will transfer to the phone. The call will be terminated when you hang up the receiver.

With this bit of DOS know-how, how do you get Q&A 5.0 to handle the task for you automatically? You use the new @Shell command, and it's ability to pass a field value to DOS as a variable.

## Setting up your auto-dialer

Assuming, you have a database with a field that contains phone numbers, add two more fields (without labels) to the form. Place the first field adjacent to the Phone Number field, make it one character wide, and leave it formatted for text. Then, to the right of it, add another field that's six characters wide and formatted T,JC for center justified text. The rest of your fields should follow the six-character field. When you're done, your form should look something like this:

```
Fields

Phone Number: T           > <T> <T,JC     >

More fields
```

Set the initial value for the new six-character field to "Dial." The one-character field stays empty.
Next, go to the Write menu, select Type/Edit, and type these two lines:

```
@Echo Off
Echo ATDT %1 > Com2:
```

If your modem is connected to a port other than *Com2*, change the number accordingly. Press Ctrl-F8 to save the document to ASCII format, and name it C:\QA5\DIAL.BAT. (Change the *C:\QA5* to the directory where your Q&A 5.0 program files are stored.)

Create another new document containing these two lines:

```
@Echo off
Echo ATH > Com2:
```

Press Ctrl-F8 to save it to ASCII format, and name it C:\QA5\RELEASE.BAT. (Again, save it to the directory where your Q&A program files are stored.)

Next, go to the Program Spec for the database, and perform the following steps:

1. Assign a field ID number to the Phone Number field—#10 for the programming example that follows.

2. In the new one-character field, type < *Goto #30*.

3. Program the new six-character field as follows:

```
< #20: If #10 <> "" Then {
#20 = @Shell("C:\QA5\DIAL.BAT " + #10); #20 = "Talk";
@Msgbox("Pick up the phone and","press Enter to
talk","");
#20 = @Shell("C:\QA5\RELEASE.BAT");
#20 = "Dial"; Goto #30 }
```

   Be sure to include a space between DIAL.BAT and the closing quote mark in the second line.

4. Assign the next field in your form field ID #30.

Here's what the on-field-entry program does.

If the phone number field isn't empty, the @Shell command runs the DIAL.BAT batch file, and passes the phone number in field #10 to it as a variable. Once the batch file has executed, @Shell returns you to the record, "Dial" is changed to "Talk," the @Msgbox command displays instructions, and pauses the program until you press Enter. (It's a reminder to pick up the receiver and press Enter to pass control from the modem to the phone.)

You won't necessarily want to dial the phone number every time you use the record, so the one-character field in front of the "Dial" field deflects the cursor, yet allows you to execute the program by clicking on "Dial" with the mouse.

Try out your new auto-dialer. Enter a phone number in the Phone Number field, and click on the "Dial" field with your mouse. Here's what should happen:

1. The screen will momentarily blank, and your modem will begin dialing.

2. You'll be returned to the record, and "Dial" will change to "Talk."

3. The message box will appear, reminding you to pick up the receiver and press Enter to talk.

4. The screen will again momentarily blank and control will be passed to the phone.

5. The field will change from "Talk" to "Dial," and the cursor will move to the next field on the form.

You can use your new phone dialer in Add Data and Search/Update modes as long as there's a number in the Phone Number field. You can also use Tom Marcellus' suggestions on adding Windows-like buttons to your form (see the February 1996 *The Quick Answer*) to make the "Dial" field look like a click-on button and stand out on your form.

Happy dialing! **QA**

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# Q&A Lite . . .

*Continued from page 11*

particularly when you find yourself creating the same Retrieve Spec over and over.

Saved Retrieve Specs can be especially useful in macro-driven procedures. For example, if you automate a procedure with a macro, and the procedure uses a Retrieve Spec to select records, it can be easier and more reliable to have the macro choose an existing Retrieve Spec rather than having it type in a new Retrieve Spec from scratch. If the Retrieve Spec is complex, and you need to only slightly modify it each time you use it (change the date range, for example), you can create and save the Spec, then make your minor changes each time you use it. Or, if the procedure is automated, you can have your macro load the saved Spec, then pause at the pertinent field(s) for you to enter your changes.

You save a Retrieve Spec by pressing Shift-F8 at the Retrieve Spec screen and assigning a name to it. You load a saved Retrieve Spec by pressing Alt-F8.

## Performance considerations

If you find yourself frequently searching on the same field, consider making it Speedy. When you make a field Speedy at the Speed-up Spec, Q&A indexes and searches on it much faster. Don't overdue it with Speedy fields, though. As you make more and more fields Speedy, you'll begin to notice a degradation in Q&A's performance, particularly when saving new and updated records when Q&A has to update the indexes.

Using programming expressions in the Retrieve Spec can also slow down searches and retrievals because Q&A has to evaluate the expression on *every* record before it can determine whether to include it. **QA**

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# Auto-Increase/Decrease Your Fields

COLIN COADY

Take advantage of these design and programming tricks to make Q&A increment and decrement date, number, and money fields at your command.

DOS WIN

ONE of the things I like about Quicken is that I can press the "+" (plus) or "-" (minus) key to increase or decrease a number, money, or date value one unit at a time. I wanted this same capability in some of my Q&A databases, and though it requires an additional keypress, you might find it worth it.

To add this feature to a database, you'll need two single-character labelless fields for each field you want to increase or decrease. You can create a sample database with fields named Number, Money, and Date (formatted for numbers, money, and dates, respectively), so you can see how the feature works with each type of field. The Number field will increase or decrease by 1, the Date field by one day, and the Money field by 1 cent. The adjustment range can be anything you want to program. For example, you can make the Money field change by dollars instead of cents.

To implement the feature, add a one-character labelless field in front of the Number, Money, or Date field. Use the "<" character instead of the ":" to denote the beginning of the one-character field, so it won't show during data entry. Format the field for text, and assign a "$" Field Template to it to keep it from expanding. Program it as follows to prompt you when you're about to enter the adjacent Number, Money, or Date field:

```
<#70: If #70 ="" Then  @Msg(
"Press + or - then ↓ to increase or decrease this
field.")
```

To create the down arrow character ("↓"), press Alt-F10, then hold down the Alt key and type 25 on the numeric keypad.

Program the Number, Money, or Date field like this to clear its preceding +/- field:

```
<#80: #70=""
```

Next, place the other one-character labelless field (again, using the "<" field delimiter) directly below the one-character field you just added. If this new field is related to the Number field, program it along the following lines:

```
<#90:
If #70 = ""  then goto Number;
If #70 = "+" then {Number = Number + 1; goto #70};
If #70 = "-" then {Number = Number - 1; goto #70}
```

If the field is related to the Date field, replace Number with Date. If it's related to the Money field, substitute Money for Number, and change the two occurrences of 1 to .01 to increase or decrease the value by cents (leave them at 1 to increase or decrease the value by whole dollars).

Finally, at the Navigation Spec, add an on-field-exit goto command to the Number, Money, or Date field to make the cursor bypass the second one-character field.

Now, add a record, and move to the field in front of the Number, Money, or Date field. In accordance with the prompt, press the "+" or "-" key, then press Down arrow to increase or decrease the value. Press and hold Down arrow to increase or decrease the field as fast as your computer can go. At any time, you can optionally press Enter to move to the Number, Money, or Date field and clear the "+" or "-" in the preceding field.

If your Number, Money, or Date field has a field label, you can place the one-character field preceding it between the label and the field. This way, what appears to be a space (but is actually a field) looks like part of the label. Here's an example of what your form might look like at the Design/Redesign screen:

```
Number< :     >
      < >

 Money< :        >
      < >

  Date< :           >
      < >
```

You can use the Field Names Spec to ensure that the pertinent fields retain their original field names. **QA**

Colin Coady is a veteran Q&A user and developer from Moncton, New Brunswick, Canada.

# Create a Custom Macro Set for Each Database

TOM MARCELLUS

Need a way to control which macros are available in a database? Here's how to combine two Q&A 5.0 features to create a custom list of macros for any database.

THE ability to control which macros are available in a database figured prominently on many Q&A 5.0 wish lists. It stemmed from a need to have an exclusive set of macros for use with Database A, a different set for Database B, and so forth. Ideally, such a feature would enable you to specify a macro file to auto-load with each database, or at least connect macros with a database so they would be available only in that database. Although Symantec didn't include such a feature in Q&A 5.0, you can get the practical equivalent by teaming up Userselect and @Macro.

## The technique

In my article, "Create a More Versatile External Program Launcher" in the February 1996 issue, I describe how to add a Windows-like button (or a regular field) to your form that you can click on to display a custom list of external programs to run. You can use the same technique to add a "Macro" button to your form. You can click on the button to pop-up a list of macros to run. This way, you can customize the list for any database, and the macros available to run in one database can be excluded from databases to which they don't apply.

Listing 1 shows a sample program for the MacroButton field. It's logic is similar to the ShellButton program described in the February article. The difference is that this one displays a custom list of executable macros rather than external programs.

## With a Mouse Click, Display Your Custom Macro Menu in Any Database

When you click the right mouse button (or press Alt-F2), Q&A displays a list of all macros. However, you can attach a macro to the right (or center) mouse button to display your *custom* macro list and make it work the same way in any database. (You can use the same technique to display a custom list of external programs to run in any database. See "Create a More Versatile Program Launcher" in the February 1996 issue.)

Start with a database that already contains a field with an on-field-entry program to display your custom macro list. Add a labelless field named LastField to the end of the database, and make it invisible by setting its background color to the same as the form's background color.

Next, at the Program or Navigation Spec, add this command to LastField:

```
< Goto macro field
```

Change *macro field* to the name of the field whose on-field-entry program displays your custom macro list.

Finally, record a nokey macro named *Right Button* that "presses" the End key enough times to move the cursor to LastField from any field in any database in which you might invoke it. If the applicable databases contain no goto commands, three End commands should be enough. Otherwise, you might need 10 or more. Your finished macro should look like the following, with fewer or more End commands as required:

```
<begdef><nokey><name>"Right<sp>Button"<vidoff><end>
<end><end><end><end><end><end><end><end><end><enddef>
```

With these elements in place, clicking the right mouse button from any field in any applicable database will move the cursor to LastField, execute the goto, and display your custom macro menu. You can still press Alt-F2 to display the list of all macros in memory.

**Listing 1.** Sample program for the MacroButton field.

```
<  MacroButton =

  "Print to Printer A |Print PtrA,"     +
  "Print to Printer B |<altb>,"         +
  "Print to Disk      |Print Disk,"     +
  "Save & Exit        |Save & Exit,"    +
  "Exit No Save       |Exit,"           +
  "ID to Clipboard    |Copy ID,"        +
  "Switch to Calendar |Start Calendar," +
  "Toggle Insert key  |Toggle Insert,"  +
  "Add Notes          |Add Notes";

@Msg("Select the macro to run");
MacroButton = @Userselect(MacroButton);

If MacroButton = ""
Then
{ @Msg("Macro operation abandoned");
MacroButton = "Macro"; Chome };

If MacroButton <> ""
Then
If @Askuser("...Run the MACRO selection...",
   @Left(MacroButton,@Instr(MacroButton, "|") - 1),
   "(Macro name) " + @Mid(MacroButton,
   @Instr(MacroButton, "|") +1, 40))

Then
@Macro(@Mid(MacroButton,
@Instr(MacroButton, "|") +1, 30))

Else
{ @Msg("Macro operation abandoned");
  MacroButton = "Macro"; Chome };

If MacroButton <> "Macro"

Then
{ @Msg("Couldn't find a macro named `" +
@Mid(MacroButton,@Instr(MacroButton, "|")
+1, 30) + "' in macro file!");
MacroButton = "Macro"; Chome }
```

## What the program does

Take a look at the first section of the Listing 1 program. The items to the left of the pipe ("|") characters are the macro descriptions as you want them to appear on the selection list. They're padded to 19 characters because that's the width of a Userselect list. The "|" separator characters are at the 20th character position in each case, and the items to their right are the actual names you've assigned to the macros as they exist in the macro file. The logic is similar to the way you fill out an Application Menu Option screen, with the menu descriptions or items on the left, and their corresponding macro names on the right. You can, of course, include macros that do nothing but display custom menus.

Notice the "<altb>" macro on the third line of the program. Though this is a hot-key macro that can be invoked from anywhere in Q&A, it's included here to show how the technique can accommodate these kinds of macros.

The program begins by copying the selections and their corresponding macro names to the MacroButton field, where the Userselect list is generated, displaying just the descriptions (the first 19 characters of each line).

If you press Esc or click outside the list, it disappears, and a message appears indicating the macro operation has been abandoned.

When you select a macro to run, the @Askuser command displays a "User Query" box prompting you to confirm that you want to run the selected macro. The box's text looks like this:

```
...Run the MACRO selection...
     Print to Printer A
  (Macro name) Print PtrA

       Yes        No
```

If you choose No, a *Macro operation abandoned* message appears and the cursor is moved to the first field. If you choose Yes, the program parses the macro name attached to your selection and passes it to the @Macro command.

You can, of course, modify the @Askuser query box to suit your needs. Or, you can leave it out of the program altogether, so the macro is invoked as soon as you've selected it from the list.

You now have a way to create a custom list of macros (and custom menus) for any database. The technique makes it easy to add and remove macros, and the program is portable. You can quickly copy it to another database, then simply plug in the macros you want to make available in that database. **QA**

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