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Do the 'Double Lookup' with Drill-down Pick-lists



JEAN-LOUIS RUELLE



The Quick Answer

The Do-It-Yourself Guide to Q&A

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MARBLE PUBLICATIONS

DATA entry tasks should require as little typing as possible. Not only because typing is time-consuming work, but also because the more you type, the more typographical errors are likely to wind up in your records. Your merge letters might then contain goofs, reports might give you wrong answers, and searches may not turn up all the records they should.

Many features and techniques are available in Q&A to simplify and validate (prevent errors in) data entry. You've got your Format Spec to check the data for the correct type (Date, Number, Money and so forth). You've got your Restrict, Initial Values and Field Template Specs. In the Program Spec, you can add programming statements to auto-fill fields via Lookups and XLookups. And in Q&A 5.0 you can take advantage of Userselect pick-lists.

One of the real advantages of this last option can be illustrated using a technique I call the "Double Lookup." It consists of a selection list (pick-list) that automatically displays on entering a field, followed by a second, related, sub-list that displays after you've made your choice from the first one. "Drill-down" or "list-chaining" techniques like this have been covered in past issues (see, for example, "Simplify Code and Subcode Lookups" in the August 1997 issue, and page 9 of the August 1995 issue) but my approach is very easy to understand and implement, and so readily adaptable to a variety of data entry needs, that I thought it worth revisiting the topic.

List chaining

I'll illustrate using a general automotive repair shop. With each repair order, you need to enter the car manufacturer and model. (These could just as well be shippers and shipping options, shirt styles and sizes or colors, or gadget makers and their gadgets. Once you've become familiar with the technique, you'll see how easily adaptable it is.) You've got Ford, Chevrolet, Nissan, Volvo, Pugeot, Mercedes and all the rest. Each of these manufacturers makes a variety of models. When you write up a repair order, you want to be able to pick the automobile maker from the first list, then get a second list of just the models made by that company. (See Figures 1 and 2.)

Continues on page 3

Figure 1. First, you choose the automaker from the pop-up pick-list.

Figure 2. Then you pick the model from that automaker's sub-list.

Conference Videos a Hit!

If you've put off purchasing the videotapes of **The International Q&A Users Conference 2001** in January because you've wondered if they're really worth having, here's an unsolicited email from a subscriber that might help you with the decision:

I attended the January Conference in spirit only but when I received the videotapes, I felt like I had been there. They were most enjoyable and inspiring. I'm delighted you and the dedicated Q&A professionals are spearheading Lantica and I know it will be a terrific product. Thanks for all your hard work and for a great conference.

—Drexel Riley, Texas

Oh, and if you're wondering about the quality of the conference itself, here's another unsolicited email received from an attendee several weeks after the event:

This was by far the best, most informative seminar I've ever attended, and I've attended many. Not only is the "Sesame" news exciting, but the Q&A information content was so comprehensive. Best \$99 (plus \$99 for David) I've ever spent for a conference/workshop/seminar. My thanks to everyone!

— Carol J. Wilde, Washington

(Business built around Q&A-DOS since 1985)

The Conference videotape set (nearly 9 hours in length) covers a host of important Q&A topics and is only \$125 plus shipping. You can order the set (or just the Sunday video featuring the 2 ½-hour presentation on the coming Q&A-compatible product code-named "Sesame") online at www.quickanswer.com/qavideos.htm or by calling us at 800-780-5474.

Quick Tip

LaserJet Hangs, Won't Eject Last Page

After designing a one-page fonted Q&A 4.0 merge document for a client recently, I ran into something I hadn't seen in a long time. When printing the document to a LaserJet III (using the HPLASERJ.FNT driver), the printer would hang with its light flashing and wouldn't eject the page without pressing its FORM FEED button. If we sent a second document to the printer right after the first, the first one would eject, but the second one would then hang in the printer until FORM FEED was pressed.

After fiddling with the Page Length (the client wanted "spacey" linespacing, and an 8.7" Page Length looked just right to him) and other Define Page settings, we couldn't cure the malady. Since we couldn't ascertain whether the problem was document-, printer- or driver-related, I finally fell back on an old trick I learned in the early LaserJet days. I

moved to the end of the document and on the line immediately below the last printed line (the writer's name and title), I typed in the following universal LaserJet and compatible printer Reset code and resaved the document:

←E

The problem vanished. A single document, several documents in succession—all printed just fine.

The left arrow character is ASCII 27. You type it in Q&A by first pressing Alt-F10, then holding down the Alt key while typing 27 on the numeric keypad.

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Double Lookup. . . cont'd from page 1

The secondary or Lookup database

The first thing you should do is complete your Lookup database. This is not the repair order database but the database from which your repair orders will retrieve the data on car makers and models.

This Lookup database (let's call it VEHICLES) requires only four fields with this programming:

MAKER

```
< If Not MAKER = "" Then { Clear(MODEL); Cnext }
```

MODEL

```
> If Not (MODEL = "") Then  
{  
  If ALL MODELS = "" Then  
    ALL MODELS = MODEL  
  Else ALL MODELS = @Str(ALL MODELS) + ";" +  
@Str(MODEL) ;  
  LAST = MODEL ; Clear(MODEL)  
}
```

LAST

```
> Goto MODEL
```

ALL MODELS

Figure 3 shows a sample record from this database. You create one record for each car maker. The first one might be for Ford. After typing "Ford" in the MAKER field, you enter each Ford model, in turn, in the MODEL field (in any order). The programming adds each model to the ALL MODELS field as you do this (each separated by a semi-colon) and reminds you, in the LAST field, of the last model entered for this maker.

When you're done, you'll have one record in the database for each car maker, and each of these records will contain all that maker's models. The MAKER field must be Speedy/Unique at the Speed-up Spec.

If you missed entering any models, or if a maker adds new models to it's line next year, you can return to the record at any time to update it.

The primary database

The "primary" database is the one you use over and over again every day—in this case, the one where you enter

your repair orders. The two pertinent fields in this one are MAKE and MODEL. Only the MAKE

A screenshot of a database record titled "AUTO MAKERS AND MODELS". The record shows the following fields: MAKER: Ford; MODEL: [redacted]; LAST: Mustang; ALL MODELS: Taurus; Expedition; Pathfinder; Escort; Crown Victoria; Bronco; Mustang. Below the fields, there is a note: "The car Maker's models are grouped in the ALL MODELS field. To add a new model, type the new model name in the MODEL field and press Enter to add it to the ALL MODELS field. Add a new record to the database for each car maker." At the bottom, there is a status bar: "DBLXLU2.DTF Retrieved form 1 of -- Total Forms: 3 Page 1 of 1" and a list of function keys: "Esc-Exit F1-Help Alt+F6-Table F7-Search F8-Calc F10-Continue".

Figure 3. The "Ford" record.

field needs a little programming. Here it is:

```
< If MAKE = "" Then  
{  
  XUserselect("VEHICLES", "MAKER", MAKER) ;  
  Clear(MODEL)  
};  
  
If MODEL = "" Then  
{  
  XLookup("VEHICLES", MAKE, "MAKER", "ALL MODELS",  
MODEL);  
  Userselect(MODEL,MODEL)  
}
```

In this database, when you click on or move to the MAKE field, an alphabetical pick-list of car makers automatically displays for you choose the one you want. When you've done that, an alphabetical list of all the models for that maker comes up, and you make your selection from that list. Easy—and no typing!

Jean-Louis holds a Master of Science degree in Electricity and Electronics from a Brussels, Belgium engineering school. He spent most of his career in semiconductor circuitry, working for Philips (Netherlands), Fairchild Semiconductor and Texas Instruments. He later became involved in electroacoustic design on speakers with 3A (France) as technical director and then designed RF communication gear for alarm systems. Working in Q&A became a hobby 14 years ago, developing applications for electronics and medical accounting.

The two Q&A 5.0 databases in this article are included in this month's download file for Download Edition subscribers.

Eminently Adaptable

You can adapt this technique to a variety of product or service scenarios. For example, you might want your pick-lists to drill down to a selected shipping method in a structure like this:

FedEx – Overnight, Overnight AM, 2 Day
UPS – Next Day, Second Day, 3-Day, Ground
US Mail – Snail, Priority, Express

Here, FedEx, UPS and US Mail would be on your initial pick-list, and their various service options would be on your second or sub-list.

You can also build on the technique to accommodate third and fourth level sub-lists. For example, if you sell shirts, your Lookup or secondary database could contain a record for each shirt manufacturer whose line you stock. And in each such record you could have a semi-colon-delimited field (constructed like the ALL MODELS field above) for STYLE, SIZE, and COLOR. This way, when writing your sales orders, you can simply pick, pick, pick and pick instead of type, type, type and type. —Ed.

Search Tricks, Quirks and Oddities

ALEC MULVEY



THE developers of the coming new database manager from Lantica Software (code-named “Sesame”) want the new product to be compatible with Q&A to the greatest extent possible. Since I’m a member of the Lantica team, and because record searching is such a crucial aspect of working with databases, I took it upon myself to fully explore and document the characteristics of searching in Q&A.

This exercise turned up some surprises. In this article, I’ll describe some of the less well-known aspects of Q&A searching and tell you about some quirks and oddities I’ve come across when delving deep into Q&A’s Retrieve Spec. I’ll present them in no particular order, and many of them may be of little or no value to you. But you might just find that one or more of these gems throws some light on something you have never quite understood or might unlock some procedure you’ve been struggling with for ages.

Keep in mind that when I talk about *searching* for or *retrieving* records, it means the same thing as *finding* or *including* them. Even though you don’t really “search” for records when you run a report, mass update or mail merge (instead, you *include* them), you still fill out the same Retrieve Spec as you would if you just wanted to view those records.

Finding periods in fields

To find a period as the last character in the field, you type three periods in that Retrieve Spec field, like this:

...

To find two periods, you need to use the “\” character, which means “take the next character literally”

To find two periods at the end of the field, you would type this:

...\\.\\.

Likewise, you can use:

...\\?

to search for entries ending in a question mark. (Q&A otherwise treats the question mark as a wildcard character representing any one single character.)

Max and Min

You can use “**Max**” or “**Min**” (without the quotes) in one field only to retrieve the highest or lowest values in that field. Q&A interprets “**Max**” by itself as “**Max1**” and will retrieve one record *unless that field is empty in all the records*. You *can* enter other criteria in other fields as well. In this latter case, Q&A will do three things: (1) perform a normal search, then (2) apply the Max or Min criteria to further restrict the records, then (3) sort the results by the Max or Min field. So, you could, for example, retrieve all customers in New York and New Jersey, and use “**MAX 10**” in the **No of Employees** field to find the ten companies with the most employees across these two states:

```
State: NY ; NJ
No of Employees: Max 10
```

But what if the guy’s name is Max?

Suppose you need to find someone whose first name is “Max.” To simply put “**Max**” in the First name field would find the entry closest to the end of the alphabet—probably somebody with a name like “Zak”! The solution here is to use another of Q&A’s esoteric search tools—the “]” or right square bracket.

This search parameter is described in the *Q&A User Guide* (page 3-54) under “Non-Standard Values,” but the character is not given a name, except “right square bracket.” It’s like the “\” backslash character in some ways, but can be thought of as instructing Q&A to perform a literal text search using whatever follows it. Unlike the “\” character, the “]” character changes the behaviour of all the criteria in that field.

Internally, Q&A stores all your data as text. Even dates. Even numbers. Of course, you can format fields for various data *types*, and so date fields behave as dates and you can search them accordingly. The “]” character, however, tells Q&A to search on the underlying text value. So typing “**]max**” in a field at the Retrieve Spec would find the records containing that literal three-character string.

Using Max for a quick sort

You often want to look at the values in a particular field, sorted. One way is to enter “/=” (without the quotes, of course) in the Retrieve Spec, press F8 for the Sort Spec, go to the same field and enter “**1AS**” there, then run the search. A quicker way, though, is to enter, say, “**MAX 9999**”

in the field (where “9999” is a number greater than the number of records in the database). This will show all the records, sorted in descending order (9-0 or Z-A). Blank values will be listed last. “MIN 9999” will list blank values first, followed by 0-9 or A-Z.

Multiple “Max’s”

If you enter “Max” or “Min” in more than one field, Q&A will disregard all but the last one—that is, the one in the lowest field in the database form.

“]” and dates

As you’ve read here a hundred times, Q&A stores dates in the format “YYYY/MM/DD.” Using “]” allows you to search date fields on this internal text string. So, you can find all the dates like these:

```
The first of any month ]..01
In 1998 ]1998..
In May of any year ]????/05/??
After 1 Jan 2000 ]2..
```

Note that the last example would pick up an incorrect date such as **29 Feb 1999**. Q&A stores “incorrectly formatted” values as literal text. In fact, the classic example of using the “]” character is to find such values:

```
]N/A
]unknown
```

and the like will find these exact entries in a date field.

You probably know by now that you can find *all* incorrectly formatted values in a field using this command:

```
/..
```

This is an extremely useful search technique, and one you can and should employ to clean up any spurious entries in your database fields.

Case-sensitive searches

Q&A is entirely case-blind. That is, it makes no difference whether you use UPPERCASE, lowercase or even a MIXtuRE oF the tWo. Q&A just accepts whatever you type, at all times. This makes Q&A easier to use, particularly when working with passwords and when searching.

There may be times, though, when you want to perform a case-sensitive search. This could be, for example, to find values you suspect have been incorrectly entered, or imported data, or the result of a field having had its format changed at some time. Up until the Savannah, Georgia Q&A Bash in 1997, the only way I knew to perform a case-sensitive search in Q&A was by using the @ASC function in a programmed retrieve. I remain grateful to John Dow for showing me then a better way.

We’re back to the “\” character, which means “take the following character literally.” Well, Q&A *means* literally—even the case. You have to use one “\” for each character. So, to find the entry “bbc” in lowercase, you would need to enter this at the Retrieve Spec:

```
\b\b\b
```

If you want to find all entries starting with a lowercase letter, you will need to revert to a programmed retrieve, like this:

```
#1: { @ASC(#1) >96 }
```

These ASCII values are listed in Appendix H of the *Q&A User Guide*. If you study the ASCII table, you’ll quickly see that every lowercase letter has an ASCII value that’s exactly 32 greater than its uppercase equivalent.

And what about Sesame? I can reveal not only that Sesame will have the same characteristics as Q&A in this regard, but that there will be a *much* better way of performing case-sensitive searches!

Starting searches with “=”

In Q&A you can put the equals sign “=” in front of almost any search criteria, but it isn’t necessary. (An exception is wildcard searches.) So :

```
Surname: smith
```

is the same as:

```
Surname: =smith
```

Spaces

Another user-friendly characteristic of Q&A is the way it automatically trims spaces from field values. If you enter this:

```
(space) (space) tennis match (space) (space)
```

Q&A will remove the leading and trailing spaces and store just “tennis match” in the field. Likewise, spaces are trimmed from search criteria. You can’t search for a space at the beginning of a field because there can’t be one.

Here’s a curiosity, though. Q&A treats multiple contiguous spaces *within a field value* as one. Add some records to a database with these entries in a field:

```
a b c (one space)
a b c (two spaces)
a b c (three spaces)
```

You’ll be able to retrieve all of them with criteria the same as any of the entries—that is, one space, or two spaces or three spaces—or 20 spaces between the letters. Searching for contiguous multiple spaces appears to be impossible without using a programmed retrieve.

Continues on page 8



Print Specs Missing in Q&A Win

I recently purchased Q&A 4.0 for Windows. I've been able to figure out how to do most everything that I did in Q&A for DOS, but I'm having a problem printing a membership list. It isn't a report—it's a list that looks like a members directory:

| Name | Address | Club | Phone Numbers |
|------|---------|------|---------------|
|------|---------|------|---------------|

Each line is another field that's merged into an easily printed format. I can retrieve whichever records I want to print in this form. In the "old" Q&A for DOS it was on the File menu under Print. But I can't find this in Q&A for Windows. I see where reports can be designed and printed, but that isn't what I want. If Q&A for Windows doesn't have this feature, then I won't be able to use it. I was under the impression that Q&A for Windows had the same features, plus some—not "most" of the same features, plus some.

Elizabeth

This is one area where Q&A for Windows is even better than Q&A for DOS. The secret is to set up a new form for your list. You can have many views (forms) for the same database and they do *not* have to include all the fields in them. So, you create a new input form with just the four fields you want to show, and save the form with a name. This form will always be available to you from the drop down list at the top of the screen. You can retrieve and sort whatever records you want. Select *Records / View as Spreadsheet*, and there's your list! You can print it, scroll through it, even make changes to it in Spreadsheet view.

The beauty of multiple forms is that forms other than the Master form can be set up to show only a subset of the fields. Every field and all the data is always on the Master form. But if you set up a second form to show only some of the fields, you can work with just those fields. Any changes you make to the data in "secondary" forms is still reflected in the data on the Master form for those records.

You can also change the way you see your list by using Q&A for Windows' *Free-Form Report* designer. This enables you to do almost anything you want as far as display formatting and sorting.

Can't Get Desired Date Format in Field

Editor's Note: The following exchange describes an ongoing problem the reader was experiencing. I've included a few questions and responses to better illustrate the situation and resolution.

I have a database that won't let me enter dates by using a "/" between the numbers. The field will not accept the entry.

Are you sure you're using "/" and not "\"? Maybe the record is corrupted. Try adding a new one and see what happens.

Per your suggestion, I deleted one record, then added it newly from scratch. It didn't work. It wouldn't let me type slashes in the date field, but I could use hyphens. I guess I can live with that. The same thing happened on the second record. What do you think? Yes, I'm sure that I mean "slashes," as in format 7 at the Global Format Options screen. I don't think I ever used the "backslash" in 10 years using three keyboards.

You have me stumped on this one!

Guess what?—I finally solved the mystery of adding slashes to the Date fields in some of my errant records. By changing the field designation from "N" to "T," the date field immediately accepted the slash. Hallelujah!!

This is precisely the issue I discussed last month in my "Sesame Seeds" column on page 11—the importance of specifying the proper format for your database fields. Whenever you have a date field it should be formatted "D" for dates, not "T" for text or "N" for numbers. You do *not* want to store dates in text or number format! You want to store them in a Date format so that the database can find them and *use* them as dates in sort, retrieve and report operations.



Stumped?

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

Q&A version number (and whether DOS or Windows) and a detailed description of the problem. We'll publish those questions we feel are of general reader interest; individual responses aren't possible.

Windows Driver Causes Q&A DOS Print Errors

I have a serious Q&A 4.0 for DOS printing problem. I run Q&A on a Windows 98 standalone PC. I print several hundred multipart statements each month, in one fell swoop, to my venerable Panasonic dot matrix printer. I'm using the right Q&A driver. I also have another printer, an HP multi-function job, and use a manual switchbox to switch between the two. Beginning a few months ago, a chunk of the Q&A job would print okay, then the printer would suddenly skip a line or two, trashing the remaining forms. I have been reduced to having to stand next to the printer to observe the entire process. Can you help?

Ed

Editor's Note: This was another of those on-going issues. Here, I'll just summarize the findings.

We tried everything to no avail, including spool and no spool, changing default printers in Windows, and so forth. No soap. We were stumped and suggested he check Panasonic's Web site for anything on known conflicts.

He hit pay dirt at Panasonic's site. The culprit turned out to be related to his HP multi-function printer that faxes, scans, and makes coffee. The Windows software for it was causing the conflict. After removing the printer and uninstalling its software, his Q&A printing problem vanished. (Now he has to solve the problem of not being able to use the HP device, so it's off to HP's site again, this time perhaps for an updated driver.)

This seems to be a trend lately. We have seen printer and scanner installations cause some really annoying kinds of problems, including keystroke loss, mouse stalls, GPF crashes, loss of internet connection, and the like.

These are caused by software that monitors printer status but is not compatible with the machine's BIOS, printer cable, switchbox, or feed-through device (parallel port Zip drive or scanner), operating system, or even such simple things as utilities that turn off the light in the scanner. Make sure that you *always* check your printer or scanner manufacturer's web site as soon as you install a new device or peripheral. If you upgrade your operating system (Win 95 to Win 98, Win 98 to Win 2000 or WinMe) make sure you download all the latest drivers for *all* your devices—drivers that are designed for the *specific* operating system you're using. One other interesting point worth noting here: The same printer on the same computer might print fonts differently when you change operating systems without updating the drivers.

Lesspace Won't Run in Windows Me

I've been having a major problem with Q&A 5.0 and my new Compaq Computer. If I run Q&A with *lesspace.com*—as you've so often told us is necessary to overcome the large hard drive issue—I get a Windows error message that says:

"This program has caused a problem" Then the system crashes. If I start Q&A with just QA.COM, it seems to run fine. My PC has a 40G drive which the boss won't let me partition. What can I do to use Q&A and keep my data safe?

Sean

I've seen this several times. It's a problem that's very specifically linked to certain combinations of hardware and operating systems. We haven't been able to compile a list of the offenders but, take heart, Michael Kennedy, the creator of *lesspace.com*, has updated the utility and posted new versions on his Website at www.KennedySoftware.ie. In every one of the few cases where we've seen this occur, use of the registered version of Lesspace (as opposed to the free evaluation copy) has solved the problem. To get the latest version, or to upgrade to the registered copy (my recommendation) visit Michael's Web site.

Saved Reports Keep Getting Changed

We have several very important reports in our Q&A 5.0 database. We do a lot of work with State and Federal agencies and have to submit many reports in precise formats on a regular basis. The problem we are seeing is that our people also use these basic reports, with some modifications, to provide information to some of our other customers; and the changes they make permanently stick in the reports. We can't afford to restrict any of our users from the Report design module since they're always having new requirements to meet. The Q&A Report Menu lists *D - Design/Redesign a report* first, then *P - Print a report* second. I think our problem would be solved if we could just reverse the order of these two selections. Is this doable?

Craig

The solution is rather simple in either Q&A 4.0 or 5.0 for DOS. It involves replacing the normal built-in Q&A Report menu with a custom menu. You can create a custom menu like the one here very easily:

Report Menu

Print a Report
Design-Redesign Report
Set Global Options
Rename-Delete-Copy

This way, pressing Enter (or "P") on the initial menu will take you to Print a report with *temporary* changes only. To design or re-design a report, the user will either have to scroll down a choice or press "D." To create this replacement menu, follow these steps:

1. Press *Shift-F2* for the Macro Menu, then *M* for Create Menu.

Continues on page 12

Yes/No fields

You've probably already discovered that Yes/No fields permit more than one type of entry. In fact, there are five sets of entries you can make:

Y, Yes, 1, T, True
N, No, 0, F, False

You can enter any of these and search for any of them. Just like for date fields, the Q&A Retrieve Spec is very accommodating.

A Yes/No field in Q&A actually has three states. It can have a "true" value (1), a "false" value (zero), or it can be empty (null). You can also search for these three states. This might be obvious, but that's not the case with some other databases.

This is an area that has caused me some problems in the past. In a Q&A retrieve:

The criteria "Y" or "1" finds only actual *entries*.
The criteria "N" or "0" finds only actual *entries*.

If, in a particular field, you are marking just the ones to be included, then this behaviour is just fine. A search for "Y" will find only those records explicitly marked for inclusion. But, if a field has a *negative* context, like my **Include in Mailings?** field, it tends to be populated with "N"'s to *exclude* records. Logically, when I search for those that I want included, I want to be able to put just "1" in the field—but I can't. I need to use:

1;= or =;/N

Instinctively, I consider a null entry to be equivalent to zero—but it isn't.

I've always been a little uneasy about this, and have often made false assumptions. Through this exercise, I have at last discovered why. The reason is: this logic is reversed in the Q&A Program Spec and programmed retrieves. If you use the programming expression:

#1: (a Yes/No field)

Any field: { #1 = 0 }

then it returns all False entries *plus* all Null entries *plus* all incorrectly-formatted data entries—that is, everything except "Y." So a null value is equal to zero.

Number of records reported

You've probably noticed that when you search on an indexed field, Q&A reports the number of records matching the criteria without having to sort or press Ctrl-End to go to the last record. In doing this, Q&A is only considering the first 16 characters as that's the maximum

length of an index entry. This can lead Q&A to inaccurately report the number of matching records. Consider the following example. In a Company Name field, let's say there are three companies:

Universal Consolidated Goldmines
Universal Consolidated Plastics
Universal Consolidated Garden Gnomes Inc

If you enter these into a Speedy Unique field, you will immediately find that Q&A flags the second and third entries as duplicate entries and forces you to override the warning message. Search for any one of these now and you'll see when the first record is displayed that the total number of records retrieved is 3. Pressing F10 to go to the "next" record makes Q&A reassess the situation and then correctly report that there is only 1 matching record.

"Not" applies to all that follows

A simple rule here, but one that deserves recapping. When you use the "/" character (NOT) in the Retrieve Spec, it makes all that follows negative. A few examples:

City: / london (any but London)
City: / london; manchester (all except London and Manchester)
City: / london; Manchester; = (all except London, Manchester or blank)

Think of this as a subset of records being excluded:

NOT (London OR Manchester OR blank)

Lastly—and I know you'll find this useful—you can perform a currency search on a number field, so you can search for >\$500 in a number field (as long as \$ is your currency symbol). There, didn't I tell you that would be useful!

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More on Searching

For more information on searching a database via the Retrieve Spec, see pages 3-49 through 3-60 in your Q&A for DOS *User Guide* (Q&A DOS) or pages 10-22 through 10-48 in your Q&A for Windows *Users Manual and Reference*. To find articles and tips on searching in *The Quick Answer*, use the back issue search indexes at www.quickanswer.com.

Remember that you can always press F1 (twice, in Q&A for DOS) at any Retrieve Spec to display a list of the usual Q&A record retrieval parameters.

Synchronize Q&A Database Records—Part 2

JOHN DOW



In last month's Part 1, John introduced you to the difficulties associated with attempting to synchronize Q&A records in databases that are used in multiple locations and discussed techniques for getting the job done. Here's the concluding installment.

Second approach—synchronizing multiple cities at the same time

If you have more than two cities and customers do move from satellite city to satellite city, you need to use a different method to synchronize other than by doing just a pair at a time.

A drawback with the multiple-city approach is that you must have the databases from all cities present at the time you do it. That could introduce an operational difficulty due to staffing patterns and different time zones.

With this multi-city model, synchronization is done between all cities at once. All the data comes to the home city and is then loaded into one database. The following procedure is used to strip away extra records so that there is only one copy of each record, and that is the most recently changed record, regardless of city.

You can do the multiple city synchronization using Q&A or DTFDATA.

Procedure for synchronizing multiple cities using Q&A

1. Create a new database called TEMP by copying the DTF and IDX files of the home database (PIT.DTF and PIT.IDX).
2. Copy all the records from the satellite cities into TEMP, using Q&A's Copy Selected Records command. It will now have all records from all databases.
3. Create a new database called NEW by copying the DTF and IDX files of the home database (PIT.DTF and PIT.IDX).
4. Remove all the records from NEW. (You could also copy the design. If you're using Q&A 5.0, watch out for the copy design bug.)
5. Recover NEW. This is important. You must do it, even if you created the database by copying the design instead of deleting records. If you don't recover (and reclaim all free space), this procedure will produce inaccurate results.

6. Copy all records from TEMP to NEW. Use a Sort Spec with 1AS in the RecID field and 2AS in the DTS field.
7. Remove duplicate records from NEW by putting "D" in the RecID field.
8. Recover NEW.
9. Copy NEW.DTF and NEW.IDX over all the other databases and return them to their various cities.

Caution: This technique appears to work. It relies on Q&A removing all but the last record in each set that it considers to be duplicates, based on the "D" in the RecID field (see the seventh step of the procedure). This is why the records were copied from TEMP to NEW in order, and why NEW had to be recovered before the records were imported. I have seen Q&A do this correctly in a small test while writing this article. I can't guarantee it will behave that way consistently or with other databases.

Procedure for synchronizing multiple cities using DTFDATA

This procedure doesn't depend on undocumented Q&A behavior that is not guaranteed to work. It's a little simpler, too.

One possible problem with the current DTFDATA is that it can only sort approximately 10,000 records (it depends on how much conventional memory is available). Since the number of records to be sorted is the total number of records from all databases before duplicates are removed, you might exceed this count. DTFDATA has options to tell you exactly how many it can sort. If you try to sort too many, it will tell you. (If needed, I can enhance DTFDATA to add an option to use extended memory for sorting, eliminating any restriction.)

1. As before, create a new database called TEMP by copying the DTF and IDX files of the home database (PIT.DTF and PIT.IDX).
2. Copy all the records from the satellite cities into TEMP, using Q&A's Copy Selected Records.
3. Run DTFDATA to extract all the records from the TEMP database into TEMP.TXT. Create a SYNC.QAX file, which should look like this:

```

FORMAT=QSORT=-31DUPS=U 9
RecID
DTS
(all other fields)

```

The command to run it would look like this:

```
DTFDATA TEMP SYNC.QAX TEMP.TXT
```

4. Create a new database called NEW by copying the DTF and IDX files of the home database (PIT.DTF and PIT.IDX).
5. Remove all the records from NEW and recover it. (As above, you could also copy the design. However, with this procedure, if you copy the design you do not need to recover it.)
6. Import TEMP.TXT into NEW. You need a merge spec if RecID and DTS are not the first two fields in the database.
7. Copy NEW.DTF and NEW.IDX over all the other databases and return them to their various cities.

Additional remarks

If you're using the two-city approach, after you've removed the records from the satellite city, there should not be many remaining. You could run a report or visually inspect those if you wish. This might alert you to problems with the procedure and even help inform you as to what's going on in your satellite office.

If you're using the multi-city approach, in the middle of the procedure you'll have a database called TEMP that contains all the records from all the databases. You can use DTFDATA to generate a file that will show you where changes have been made. You can print or view this file to compare the date and time stamp as well as actual field values in records from the home and satellite databases. This is the INSPECT.QAX file you'd create:

```

FORMAT=R
DUPS=I 8 17
RecID
DTS
(fields you want to inspect)

```

The command to run it would look like this:

```
DTFDATA TEMP INSPECT.QAX INSPECT.TXT
```

Then print or view the INSPECT.TXT file.

Here's an example of an INSPECT.TXT file from a small database I used for testing. I had four cities, LAX, MSP, PIT, and JFK. You can see that the PIT00002 record was changed at two places, PIT and JFK. The records to remain after synchronization is complete are in italics.

```

RecID  DTS                Comment field in record
LAX00001 2001/02/02 23:53 LAX Original Record.
LAX00001 2001/02/02 23:53 LAX Original Record.
LAX00001 2001/02/02 23:53 LAX Original Record.
LAX00001 2001/02/03 0:05 LAX Changed at JFK

MSP00003 2001/02/02 23:55 MSP Original record.
MSP00003 2001/02/02 23:55 MSP Original record.
MSP00003 2001/02/02 23:55 MSP Original record.
MSP00003 2001/02/03 0:04 MSP Changed at MSP

PIT00002 2001/02/03 0:00 PIT Original record.
PIT00002 2001/02/03 0:00 PIT Original record.
PIT00002 2001/02/03 0:04 PIT Changed at PIT
PIT00002 2001/02/03 0:06 PIT Changed at JFK after change
at PIT.

```

No provision is made in any of these procedures to synchronize the deletion of records. (After all, the records are our customers and we never lose any!) If, however, a record has been deleted from one database, it won't be there to have a date and time stamp when the databases are compared. So if you delete a record from the LAX database but it's still in the PIT database, the procedures described here would simply add it back to LAX.

To do a delete, there has to be a field in the database that is set to mean "Delete at next synchronization." Depending on the need, various methods for deleting the records might be used. Assuming the likelihood is very low, doing it manually might suffice. If there are too many to do manually, you could remove selected records by extracting a unique list of record identifiers to a file, editing the file to create a semicolon delimited list, then pasting the list into the retrieve spec.

John Dow is the creator of a host of valuable utilities for all editions of Q&A, including DTFDATA and DTFTALK. He is also a principal of Lantica Software, LLC. jtd@pgh.net, www.johntdow.com, 412-973-9473.

Sesame Forms and Sub-forms

A feature the team wanted to have in Sesame was one that would give Q&A users the ability to design a database with an unlimited line-item capability. In other words, an invoice or work order form that was not limited to the number of lines you could fit on Q&A's 10 screens. That's exactly what the combination of tree-based relational capability and sub-forms brings to Sesame.

Picture a sub-form as a separate database located within each form of a master database. (There's a Sesame screen that shows this at www.lantica.com.) This gives you a form with unlimited linked records or line-items. The master form stores the data about the work order or invoice. It has all of the information about the customer or the job. The sub-form is almost like another database with as many records as you need, where each record holds the information about each task being done or each item sold. This is a big step up from Q&A style forms.

Continues bottom of next page

Windows vs. DOS Interface for Q&Aers

We preview the coming Q&A successor product from Lantica Software, code-named "Sesame." Visit Lantica's new Web site at www.lantica.com

A number of Q&A users have expressed the desire that the new "Sesame" database be made to work in a DOS environment. They cite their familiarity with Q&A for DOS' menus and shortcut keys, the economical computers they have, the ability to program and retrieve records using their databases' forms and fields, and the simplicity of installing and removing programs.

"Sesame" will not run in a pure DOS environment. It will run in Windows95/98, 2000, NT or Me, or on Linux or Unix systems. But let's take the issues one at a time.

Q&A for DOS Navigation

Q&A is easy to navigate because of its simple, sensible menu system. Pressing "F" brings up the File menu, an "S" keystroke puts you in Search/Update mode and so forth. We are endeavoring to design that same navigation simplicity into "Sesame."

When you start "Sesame" and press Alt-F and "O" for Open, you'll see a menu of all your databases. You can use the arrow keys to scroll to the one you want, then press Enter to select it. You will then see a menu reminiscent of Q&A: "Forms" (File), "Reports," File "Utilities," "Customize Application," and "Application Utilities." You can make your selection with the arrow keys or the corresponding keyboard keys. The menus are self-expanding and will show all the choices you're familiar with. They can all be selected from the keyboard as well as with a mouse. Once in a database, your keyboard's function keys will bring up essentially the same screens as they do in Q&A: F7 will display the record retrieval spec; F3 will be the delete key; Ctrl-F6 will switch you to Add Data mode; F10 will save the current

record and get the next one; F9 will move back in the record stack, and so on. Of course, you can also perform all these functions with a mouse, just like in any other Windows program.

Economical Computers

"Sesame" is being designed to perform well with a minimum of requirements. You won't need a super-computer or the latest operating system to use it. As long as your PC runs Windows (or one of the other listed operating systems), "Sesame" will run fine on it. So for those with simple needs, a basic budget-priced computer (probably the one you're now using) is all you'll need! For very large databases on a network, you'll need a server with more RAM (128M or more, depending on the database size) but your workstations can still be inexpensive low-power machines.

Form-Based User Interface

"Sesame" is being designed to operate in such a way that, like Q&A for DOS, all your programming and record retrieval operations are done using your database form in the fields in which your programs or search parameters apply. And there will be no need to learn a new programming language. Q&Aers will work just like they always have when working in the traditional Q&A for DOS mode. The only difference is that you won't have to press F6 to expand a field because "Sesame" will do that for you automatically as needed. In the same vein, if you've tried to copy a programming statement to another database, you know the limitations on copying and pasting that exist in Q&A. These limits will be a thing of the past because you'll use the Windows Clipboard's copy and paste features.

Installation a Snap

Just like DOS programs, "Sesame's" installation will be easy and non-invasive. The basic program files will all be stored in a single directory (folder), making any copying, moving or removal as easy as installation; all you'll have to do is copy, move or delete the files in that one directory.

What we are working hard to accomplish in "Sesame" is to give you the best of both worlds—the simplicity of DOS operations coupled with the power of Windows.

Sesame Forms. . . cont'd from page 10

Linked sub-forms bring another benefit to your applications. Even overlooking the 10-page and programming limitations of Q&A, searching multi-line forms can be a nightmare. Take the situation where you need to find all the invoices where you sold a widget to someone or prepare a report of all widget buyers. Without some fancy workarounds, finding all the forms where a widget was sold requires entering "widget" on each and every line of the line-items area of the form, then telling Q&A to find all the records that meet any of the restrictions. Doable but tedious.

Now, what about all the invoices on which widgets *and*

doohickeys were both sold? You see what you're up against?

With Sesame and its sub-form databases, you simply retrieve the invoices where widget exists on the sub-form line. (You deal with only one entry). Sesame finds not only the sub-forms with widgets, but all the master forms to which they are attached. As for the widget and doohickey scenario, you simply find all the "widgets" in the sub-form line, then do a second drill-down search on the result set for "doohickey." It can't get much easier than that!

2. At the Menu Names screen select – *New Menu* –.
3. On the Application Menu Options screen, in the Menu Name field, press Alt-F7 and scroll down to the title “Report Menu” and press Enter.
4. Set the Display line to “Full Screen,” the Status line to “Active,” Menu returns to “No” and leave the On Escape Show Menu line blank
5. In the Menu Title field, type *Report Menu*. In the Item 1 field type *Print a Report* and in the corresponding Macro Name field just type *P*.
6. In the Item 2 field type *Design-Redesign Report* and in the corresponding Macro Name just type *D*.
7. Fill in Items 3 and 4 in the same manner using Macro names *S* and *R*, respectively.
8. Press *F10* twice and you're done.

Additional points of interest

You can't use a slash (“/”) character in a menu line, so you have to replace any slashes with a dash (“-”).

You don't need to record *P*, *D*, *S*, or *R* macros. Q&A will use the built-in menu macros for you if you use the same letters that represent the keystrokes on the built-in menu.

What you have created is a *replacement* menu for a Q&A built-in menu by naming it with the Q&A built-in menu name. You can do this for any Q&A menu. (I routinely remove the “Intelligent Assistant” selection from my clients' Main menus).

You can always get the built-in menu back by deleting the replacement menu macro in the QAMACRO.ASC file or by just Pressing *Shift-F2*, selecting the Report Menu and setting the Status line to “Inactive.”

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