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Mass Update and Batch Post in a Multiuser Environment

GORDON MEIGS

You want to post a group of records to another database but Q&A won't let you because other users on the network are accessing it. You can wait until after hours, or you can use this innovative technique to work around the problem.



YOU can simplify database management chores by working, where possible, with groups of records, rather than one record at a time. Using mail merge to print a dozen personalized form letters is obviously preferable to printing them individually. Likewise, increasing prices on inventory items by 3 percent or posting payments received is more efficient when done on a group of records, or the database as a whole.

A typical network scenario

Operations such as Mass Update and Batch Posting, though, require *exclusive* access to the database, which can pose problems in a multiuser environment. (See the sidebar, "When Q&A Locks Databases.") Take a simple multiuser system where a PC is used to log each member entering a health club. Such a LOG database might be used to rapidly lookup the arriving member's record in the MEMBERS database (to get the full name, membership status, and so forth). This means the MEMBERS database is open even when that PC is idle.

Meanwhile, the club's billing department prints monthly statements for membership dues because mail merge doesn't require exclusive use of the MEMBERS database. However, billing can't Mass Update the MEMBERS' records (marking them with a billed date notation, for example) because that operation is in the exclusive or Locked file/Single-user category.

Similarly, after recording the days receipts in a PAYMENTS database, the office might want to post them to the MEMBERS database. But when the user selects File / Post, enters PAYMENTS as the post *from* database, then tries to enter MEMBERS as the post *to* database, Q&A says "Sorry—No can do: 'File in use by (Network ID).'"

Where such a Mass Update or Posting operation is being run by a macro, the consequences can be serious. Like a faithful idiot, the macro, expecting to be at the PAYMENTS Retrieve Spec, then the Posting Spec, will continue to "play" its keystrokes. Since it can't get past the File menu, those keystrokes might do anything, from harmlessly pounding away at the File menu, to "redesigning" the database.

I'll show you a technique that allows users in a network environment to perform what would normally be exclusive Locked file/Single-user tasks on a database even when someone else is using it—tasks that would otherwise have to be performed after-hours, or during a set time each day when no one else is permitted to use the database. To illustrate, I'll use the *billed today* issue I mentioned earlier.

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The Quick Answer™

The Independent Guide to Q&A Expertise

September 1996

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Come One, Come All

TOM MARCELLUS, EDITOR

THE *Quick Answer* men are gearing up for the big Q&A Master Seminar next month (October 18) in Colorado Springs, Colorado. Dave Dvorin, Gordon Meigs, Bill Halpern, and I are planning a series of in-depth presentations we think you'll find entertaining as well as highly informative. If Q&A is at the heart of your business, this seminar could save you days—even weeks—of development time. We'll cover a host of issues, from networking, importing, exporting, and advanced database design, on down to the amazing tricks you can perform with Q&A 5.0 running under Windows 95. I plan to demo my *Universal Retrieve Spec*—a smart data retrieval tool you can use to quickly search any database by selecting the file and search criteria from convenient pop-up lists. (You'll take it home with you—along with other ready-to-use Q&A 5.0 applications—on the free seminar disk.)

The two large TV sets we used during last year's seminar were difficult for some attendees to see. This year our state-of-the-art presentation equipment will project a crisp VGA monitor image onto a wall-size screen, so you won't miss a trick.

Make a weekend out of it and stay for the National Q&A User Group's Sixth Annual Bash. Bring your list of nagging Q&A questions and get them answered. The speakers will be available all weekend for free consultation, with the majestic Rockies just a stone's throw away.

In this issue, **Gordon Meigs** shows you how to do the impossible: post a group of records to a network database when it's being used by another. **Bill Halpern** shows you a no-dupes technique that guarantees *all* your records appear on your XUserselect lists. And if you use Q&A for direct mail, I'll help you sort through the new postal regulations so you, too, can start saving money. **QA**

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10a.m–6p.m.
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Mass Update ...

Continued from page 1

A typical task

In a single-user system, a macro-driven procedure that prints the billing statements and marks the MEMBERS records as having been billed might proceed as follows:

1. Display the billing merge document in Write. Press F2, F10, then select the saved Retrieve Spec from the Alt-F8 List of Retrieve Specs (optionally selecting a saved Sort Spec as well).
2. Return to the Main menu.
3. Select File / Mass Update, enter MEMBERS.DTF, and select the *same* Retrieve Spec used to print the merge document. Select the saved Mass Update Spec that inserts today's date in the *Last Billed Date* field, and press *N* to update the retrieved records automatically.
4. Return to the Main menu when the Mass Update is complete.

A workaround

The problem in a multiuser environment, again, is that you can't run a Mass Update on MEMBERS while the front desk is using it as a lookup file to log arriving members. However, if you could somehow isolate the records you want to update, then update them in a roundabout way, you could work around the problem. Here's how you can do it:

1. Create a new database named BILLED.DTF with three fields: *Member No.*, *Date Billed*, and *Posted OK*.
2. Select File / Utilities / Export / Standard ASCII, select the MEMBERS database, and export to a file named something like TRANSFER.ASC.
3. Select the saved Retrieve Spec used for the earlier mail merge, and press F10.
4. At the Merge Spec, type a *1* in the *Member No.* field, and press F10.
5. At the ASCII Options screen, leave the defaults as they are, and press F10.
6. From the File / Utilities menu, select Import / Standard ASCII. Select the exported ASCII file (TRANSFER.ASC), choose BILLED.DTF for the Q&A database, and press F10 twice (at the Merge Spec and ASCII Options screens) to import the Member Numbers.

Notice that I've used File / Export and File / Import because the alternative File / Copy / Copy selected records is a Locked file/Single-user function. Like Mass Update, you can't use it when the file is in use by someone else. Export and Import, however, are Shared file/Multi-user—that is, they're non-exclusive operations.

Now that you've isolated the records in BILLED, you can Mass Update BILLED to put the current date in the Date Billed field. Finally, you can run a File / Post to post the *Date Billed* into the *Last Billed Date* field in MEMBERS, right? Nope—you can't, because Batch Posting requires Locked file/Single-user access to MEMBERS.DTF.

In Q&A 4.0, you'd be at a dead-end, but with Q&A 5.0 you can use XPost. XPost posts one record at a time, *in real-time* (while you're in Add Data or Search/Update) to the matching record in another database.

An important feature of XPost is that it doesn't require other users to be out of the target post to database (in this case, MEMBERS). What's more, it's a programming command, so you can use it in an Update Spec for a Mass Update.

Try it. Create a Mass Update specification for the BILLED database, using the three fields as follows:

```
Member No.: #10

Date Billed:
#20: #20 = @Date;
XPost("MEMBERS", #10, "Member No.",
#20, "Last Billed Date");
If @Error then #30 = "" Else #30 = "OK"

Posted OK: #30
```

The statement in the *Date Billed* field will post the current date to the corresponding *Last Billed Date* in the matching MEMBERS record. If the target MEMBERS record happens to be in use—an unlikely event in this application—the XPost will fail, but the *@Error* will tell you so. If there's a posting error, field #30 will be blank; otherwise, it'll be marked OK.

Save the Update Spec with a name like *Post Billed Date to Members*.

Special considerations

If you run this Mass Update manually (confirming each post) and the target MEMBER record is in use, Q&A will display a message like this:

```
! Warning !
Record in use by: Station 5
Q&A cannot complete your lookup function
Press ← to continue
```

If you then press Enter or Esc, Q&A will continue the Mass Update. I emphasize that Esc, like Enter, continues the process, because you'll probably run this procedure with a macro. If all goes well (no errors occur), then the process will end at the File menu.

Usually, you end macros with a series of Esc's to

return to the Main menu. In this case, you can finish the macro with five, 10, or 15 Esc's. This way, if the Mass Update encounters a record in use (with the resulting error message) one of the Esc's will be there to force the procedure to continue. Any leftover Esc's will do nothing once the macro has finished and returned to the Main menu.

When the Mass Update finishes, you'll want to be sure all the pertinent records were successfully posted. You can do this by searching BILLED for any records where the *Posted OK* field is blank. If Q&A tells you *No records were found . . .*, it means that all the records were successfully posted. If one or more unposted records turn up, you can rerun just the Mass Update with a second macro.

To automate the entire process, I recommend the following two macros:

- An initial macro that does everything (prints the billing statements; exports the member ID numbers from the billed records in MEMBERS.DTF to TRANSFER.ASC; imports TRANSFER.ASC to BILLED.DTF; Mass Updates BILLED.DTF (Retrieve Spec = *Unposted Records*, Update Spec = *Post Billed Date to MEMBERS*); and winds up at the Main menu where you can then search BILLED for any unposted records.
- A second macro that runs just the Mass Update on BILLED.DTF if one or more records weren't successfully posted by the initial macro.

Before recording either macro, walk through the procedure manually. This way, when you record the macro, and specify the *export* to TRANSFER.ASC, the file will be there. Q&A will warn you about overwriting TRANSFER.ASC, and you'll want the macro to contain a Y for yes, telling Q&A to go ahead and overwrite it.

As for BILLED.DTF, you can remove its records at any convenient time, but only after you're sure the day's records have all been properly posted.

Conclusion

You can use variations on this technique to Mass Update / Post to databases in use on a network without interrupting other users or having to put the updates off until after hours. Rather than operate on a database directly, you isolate the key records by porting them to a supplementary database. You perform your operations on the supplementary database, and follow by posting the results back to the target file. Any XLookups, recalcs, or post-backs can be performed with a single Mass Update of the supplementary database. **QA**

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When Q&A Locks Databases

Q&A automatically handles file- and record-locking in multiuser environments. The following rules normally apply when a file's Sharing Mode (File / Design / Secure a file / Declare sharing mode) is set to Automatic (the default) or Allow. The third alternative, Disallow, restricts all operations on a database to single-user; that is, the first user to access the file for any reason will have exclusive use of that file until they release the file by selecting another file or exiting Q&A.

Multi-user/shared file

Multiple users can have simultaneous access to the following database functions:

```
File / Search/Update (including Table View)
File / Add data
File / Print forms
Reports / Print a Report
File / Utilities / Export and Import
Write / Mail merge (documents and mailing labels)
```

Single-user/shared file

Only one user at a time can perform the following operations. If you try to perform any of these while another is using them, Q&A displays the message, *This function is in use by <network ID>. Please try again later.*

```
Report / Design a Report
File / Print / Design a Print Spec
File / Print / Rename / Delete / Copy a Print Spec
```

Single-user/Locked file

When a user performs any of the following operations, Q&A automatically locks out all other users, which prevents XLookup, XPost, and similar commands in another database from executing on the locked database. Likewise, a user can't perform any of these operations if another user is accessing the database. In such a case, Q&A displays the message, *File in use by <network ID>:*

```
File / Design / Redesign
File / Design / Customize
File / Design / Program
File / Design / Secure
File / Design / Customize Application / Lock Database
File / Remove Records
File / Mass Update
File / Post
File / Utilities / Backup
File / Utilities / Recover
```

What isn't commonly known is that Q&A considers a database in use even if the access is only via an XLookup. For example, if an XLookup command in an INVOICE database accesses the CLIENT database for just a fraction of a second to lookup a client name and address, the CLIENT file *is in use*, even after you've saved the invoice record. An effective way to close all open databases is to return to the Main menu and press Shift-F6. This clears the password, but it also closes any open databases even if they aren't password protected.

Is Something Missing from Your Pick-Lists?

BILL HALPERN

Q&A 5.0's XUserselect command lets you display a pick-list of values from a Speedy field in another database and return the selection—or another value from the same record—to a field in your current record. Over the past year, several articles and tips on XUserselect have appeared in *The Quick Answer*, but the precautions you should take when using this command haven't been adequately addressed.



BECAUSE Q&A removes any duplicate entries from an XUserselect pick-list, the external Speedy field you specify as the source of the list's selections should be unique. Otherwise, you might not know which record you're looking at. This is why you wouldn't want to use a pick-list of customers' last names to retrieve the customer account number—the possibility of duplicate last names in the external database makes it too risky.

One way to help ensure the Speedy external field is unique is to make it a field that combines, for example, the last and first name. Again, though, there could be several *Smith, John* records.

An even better solution would be to make the external Speedy field a combination of the last name, the first name, and the customer number, Social Security number, or phone number. *Smith, John 00133* is different from *Smith, John 00134*, and *Smith, John 555-8976* is different from *Smith, John 555-5643*. There is no restriction on the length of the combination value, and the XUserselect list will display up to 19 characters from each record. So, using the earlier examples, you'd expect a selection list that looks like this:

```
Smith, John 00133
Smith, John 00134 or
```

```
Smith, John 555-564
Smith, John 555-897
```

However, what you'll get on your pick-list is this:

```
Smith, John 00133
```

OR

```
Smith, John 555-564
```

What happened to the other John Smith records? As with any external lookup command, XUserselect uses only the first 16 characters of the external Speedy field to determine uniqueness. Thus, if two or more such values are duplicates through the first 16 characters, Q&A considers the second and any subsequent ones it finds to be duplicates and doesn't include them on the list.

A plan of attack

The point is, you must be careful how you construct your combination Speedy/Lookup fields. The ideal scheme would guarantee uniqueness through the first 16 characters.

The following program is an example of how to create unique values for a combination field:

```
Combo = @Left(LName + ", "
+ FName, @Str(16 - @Len(@Num(ID)*1)))
+ @Str(@Num(ID)*1)
```

Here, *Combo* is the combination Speedy field for use with XUserselect. The ID field—a customer ID for example—is left-padded with zeroes to make a five-digit sequential number (00012, 00013, 00014, and so forth). The program strips out the leading zeros, calculates the length of the unpadded ID, and leaves all but that length subtracted from 16 for the last and first name. Using this technique, and assuming a customer account number (or phone number, in the second case) is in the ID field, you'll get an XUserselect pick-list that looks like one of these:

```
Smith,John00133
Smith,John00134 or
```

```
Smith,John555564
Smith,John555897
```

You'll get pick-list selections that never exceed 16 characters (William Halpern with ID 00242, for example, will produce *Halpern,Willi242*), but you'll have added insurance that your list includes every name in the lookup database. **QA**

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@Help

EDITED BY DAVE REID

Auto Pop-up Selection Lists

I have several fields on a form for responses to canned questions I ask my customers. I have to type each response as I hear it, and I find myself typing the common ones over and over. I know I can place these in the Restrict Spec, and pop-up a selection list by pressing Alt-F7, but I'd like Q&A to display the list automatically.



Tim Rost, Boca Raton, Florida

When it comes to displaying a selection list automatically, you have two options. First, you can have Q&A execute a macro that "presses" Alt-F7 to display the Restricted Values list from the Restrict Spec. To create the macro, from the Main menu, press Shift-F2, and select Define Macro. Press Enter to create a macro without a key identifier. Press Alt-F7 once, then press Shift-F2 to end recording. At the Macro Options screen, type in a name for the macro, such as *Show List*. Press F10 then press Enter to save the macro to your macro file.

Next, add your list of common responses to the pertinent fields at the Restrict Spec, separating each response with a semicolon. Finally, go to the Program Spec. In each field you want the Restricted Values list to automatically appear, type in this program:

```
< @Macro("Show List")
```

If you want the list to appear only when adding new records, change the program to this:

```
< If @Add then @Macro("Show List")
```

Your other option is to use the @Userselect command. With @Userselect, you create the selections for your pop-up list in the Program Spec. Here's an example:

```
Question 2: <#2 = @Userselect("Never on a Sunday,  
Only if you ask nicely,When sales are up,Other")
```

You can include as many selections on the list as you like. With this example, when you move to the Question 2 field, the list will appear with your choices in alphabetical order, like this:

```
Never on a Sunday  
Only if you ask nicely  
Other  
When sales are up
```

Both options work equally well. One advantage to the first one is that you can press Esc to put the list away, then get it back by pressing Alt-F7. The second has the advantage of allowing additional commands after the @Userselect statement, such as a CNext to control form navigation.

Debugging Navigation Programming

I have a database of names and addresses, and a separate database of ZIP codes and cities. When entering new addresses, I use my ZIPCODES database as a lookup source to speed data entry, but I'm having a problem getting the programming right. Here's my Program Spec:



```
Street: >#4: If @Add  
Then XUserselect ("ZIPCODES", "City", #5);
```

Quick Tip

Undocumented Syntax for the Rem Statement



Q&A 5.0's Rem (Remarks) statement is documented with the following syntax:

```
Rem "Comments here";
```

You can optionally use the following syntax, which is more consistent with other Q&A programming commands:

```
Rem ("Comments here")
```

David Dvorin

```
City: >#5: If @Add
Then XLookup("ZIPCODES", #5, "City", "Zip", #7);
Zip: #7
```

And here's my Navigation Spec:

```
City: >#5: If @Add
      Then Goto Zip
Zip: <#7: If @Add AND #7 = ""
      Then Goto Zip
      Else CNext
```

The programming works great most of the time. It displays a list of cities, then looks up the ZIP code for the selected city. If the ZIP code is wrong, I can back up and correct it. If I don't select a city, such as when a customer is from out of state, I press Esc from the list of cities and type it in manually. But then when I press Tab to go to the Zip field, the program seems to lock up. I can press Esc again to get out of it, but I'd like to know what causes the problem.

Val Weinstein, via CompuServe

I see two problems with your programming. First, the database is "locking-up" because of the Zip field's Navigation program. You have it set to execute when the cursor enters the field. When a customer is from out of state, the Zip field is empty when you move to it. In this case, your program executes a "Goto Zip," moving the

cursor to the Zip field and executing the same code again. You've put Q&A into an infinite loop that requires you to press Esc to break. You might have meant for this program to execute as you leave the field, to force the user to enter a ZIP code before moving on. A better way to require an entry is to place an exclamation mark (!) or a slash then an equal sign (/ =) in the Zip field at the Restrict Spec.

The second problem is that you're using the city to look up the ZIP code. Cities often have several ZIP codes, and your programming doesn't account for this. I suggest you enter the ZIP code first, and have your program look up the city. Here's a sample program that'll do it:

```
Street: >#4: Goto Zip
City: #5
Zip: >#7: XLookup ("ZIPCODES", #7, "Zip", "City", #5);
      If #5 = ""
      Then Goto #5
      Else Cnext
```

QA

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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.

Letters

Mysterious "500N" Not So Harmless

In the July 1996 @Help column, Dave Reid answers my question about the mysterious 500N that sometimes appears

on Q&A 5.0's Main menu. Though his explanation might be accurate, the code isn't harmless, as he suggests. If I don't remove it by exiting and restarting Q&A, any attempt I make to program a database with perfectly valid on-field-entry or on-field-exit commands can result in an error message saying the Spec isn't valid. Then, my keyboard will freeze up when I try to get back to the Main menu.

Peter Venuto, Santa Clara, California

Upcoming Birthday Reports Revisited

Bill Halpern's upcoming birthday report (July, page 8) is a good approach, but you really *can* use just a retrieval expression for a second chance for the month of birth to match the current month plus one. Here's the expression you need for a date of birth (DOB) field:



```
={@Month(DOB) = @Month(@Date) + 1 OR
 @Month(DOB) = @Month(@Date) + 1 - 12}
```

If the current month number plus 1 equals 13, as in the case of December, it's converted back to 1 by the second half; otherwise, the first half provides the match. You can change the 1 to 2 if you want a report two months ahead, or eliminate the 1 if you want a report for the current month.

I like to sort my report by birthdays on the 1st of the month regardless of the year, then all birthdays on the 2nd, 3rd, and so on. I use these two derived columns:

```
Heading: Sort on Month and Day
Formula: @Right(#8,2)
Column Spec: 1,AS,I
```

```
Heading: Sort on Year
Formula: @Left(#8,4)
Column Spec: 2,AS,I
```

Because Q&A stores dates in the YYYY/MM/DD format, the first derived column sorts the rightmost two characters (the day) from column #8 in ascending order in an invisible column. The second derived column sorts the leftmost four characters (the year) from column #8 in ascending order in another invisible column. Column #8 is the DOB field, and intervening columns contain the person's name and other information.

A.C. Tynes, Metairie, Louisiana

Referencing Q&A's Reference Function

JEFF NITKA

If you like efficient programming techniques, chances are you've experimented with Q&A's @Field function. To make the best use of @Field, though, you need to know about *indirection*, another name for field referencing. Here are some basics.

In Q&A you can refer to a field by field ID number or field name. Suppose you have a number field named *Ref*, along with 10 other fields numbered #1 through #9. If you say *Data = @Field(Ref)*, and *Ref = 1*, then *Data* is assigned the value in field #1.

You can also use @Field (abbreviated @) on the left side of an assignment statement. If you say *@(Ref) = "Jeff"*, and *Ref = 1*, then field #1 gets "Jeff" and *Ref*'s value doesn't change.

Good database design makes referencing easier

Suppose you have a line-item type database for invoicing. Each line relates to a specific item. For example, the *Item1* field might have related *Cost Item1*, *Type Item1*, *Qty Item1*, and *XCost Item1*. Using @Field and GOSUB, you can operate on the related fields using a routine like this:

```
Item1: > Field ID = 1; GOSUB Calculate; Goto Item2;
Item2: > Field ID = 2; GOSUB Calculate; Goto Item3;
```

```
Calculate:
< @( "Cost Item" + @Str@(Field ID) ) =
  @Xlu("Products",@( "Item"+@Str@(Field ID)),
    "Code","Cost");
  @( "Type Item" + @Str@(Field ID) ) =
  @Xlu("Products",@( "Item"+@Str@(Field ID)),
    "Code","Type");
  @( "XCost Item" + @Str@(Field ID) ) =
  @( "Cost Item" + @Str@(Field ID) ) *
  @( "Qty Item" + @Str@(Field ID) );
RETURN
```

Because each field related to *Item1* ends with "Item1," you need just one field (*Field ID*) to reference all the fields related to *Item1*. Notice that @Field works like any other Q&A function—you can use the value it returns as an argument in a function, or to perform calculations.

Variation on Theme by Marcellus, Opus 23

In the November 1995 issue ("How to Lookup and

Display Information from Multiple Records"), Tom Marcellus describes a way to display a range of records from Database B while working in a record in Database A. Tom's method displays all the records in the range in a field that must be expanded to view the data.

Here's an alternate approach in which each record's data is stored in a unique field, making it visible without expanding a field. (This requires numerous fields, and so limits the number of external records you can display):

```
Data:
> Data = @Xlr("ExtFile","F999999","XField","XField");
  If Not @Error then { Ptr = 10; Goto Loop }
  Else { @Msg("No records found"); Goto Data }

Loop:
< @Field(Ptr) = @Xlu("ExtFile",Data,"XField","Ext Info");
  Data = Xlr("ExtFile", "F" + @Str( @Tn(@Rt(Data,5))-1 ),
    "XField", "XField");
  If Not @Error then { Ptr = Ptr + 1; Goto Loop }
  Else { Data = ""; @Msg("Search Complete"); Goto Data }
```

The external field *XField* is a concatenation of a Yes/No field and a unique record number. The external Yes/No field is True if a *Shipped* field isn't empty, and False otherwise. Thus the loop retrieves all the external records for products that haven't been shipped. The data from each retrieved record is stored in a unique field because the *Ptr* value changes with each loop.

Verify data when saving a record

Ganko & Son sells work clothing. Most items are sold in any quantity, but some items such as hats are sold only in multiples depending on how they're packaged. Also, each item is available in several sizes. Each database record tracks the item or style ordered, with the order quantity for each size. A portion of the record at the Program Spec looks like this:

```
Style:           Description:
Size28: #1      Size30: #2      Size32: #3
Size34: #4      Size36: #5
```

An external file stores the packaging information about each style. When a record is saved, a routine verifies the accuracy of the data, making adjustments according to some basic rules. No adjustment is made if the quantity is evenly divisible by the packing quantity. If the quantity is less than the packing quantity, the quantity

is set to that packing quantity. If the quantity isn't evenly divisible by the packing quantity, an adjustment is made in favor of a quantity that's evenly divisible by the packaging quantity, as close to the quantity as possible. Here's the routine that does it (*Ptr* is the pointer field):

```

Then
{ If @ (Ptr) < Pack then @ (Ptr) = Pack else
  If @Mod (@ (Ptr), Pack) / Pack < 0.5
  Then @ (Ptr) = @ (Ptr) - @Mod (@ (Ptr), Pack)
  Else @ (Ptr) = @ (Ptr) + Pack - @Mod (@ (Ptr), Pack) } };
If Ptr = 5 then RETURN Else {Ptr = Ptr+1; Goto Loop }

```

```

Verify:
< Pack = @Xlu ("Styles", Style, "Style", "Packing");
Ptr = 1; GOSUB Loop;
Loop:
< @ (Ptr) = @Abs (@ (Ptr)); REM "Prevents negative entries";
If Pack > 0
Then {If @Mod ( @ (Ptr), Pack ) <> 0

```

QA

Jeff Nitka works for a chemical manufacturer and develops Q&A applications part-time for Epoch Software, 908-874-3989. Jeff is the author of the Program Evaluator, a Q&A program debugging utility available from Marble Publications.

Quick Tip

Q&A 5.0 and Windows 95



Quite a few of us have been running Q&A for DOS under Windows 3.x with satisfactory results. But how does it perform in Windows 95? I conducted some informal tests to find out. I was also

curious about how much faster Q&A performed tasks on a new Pentium 166 compared with my 486 DX2-50, and what effect disk caching had when running Q&A in native DOS.

For my tests, I had Q&A Mass Update all 16,667 records in a 35-field database, using #1 = "X" as the Update statement. The

results are shown in **Table 1**.

For my money, Windows 95 is far friendlier toward DOS programs than Windows 3.1. (Clearly, Microsoft took a step forward by taking a step backward and improving support for DOS programs.) To avoid hang-ups, I always ran Q&A for DOS in full screen mode in Windows 3.1. But in Windows 95, it runs reliably in a window—and includes a task bar along the top of the window that I can use to resize the window and screen font, and cut and paste between Q&A and other DOS or Windows programs. In Windows 95, I feel confident letting Q&A compile a lengthy report or mass update in the background (in a window) while I work in another program. (See **Figure 1**.) And where Windows 3.1 and DOS gave Q&A only 525K of Conventional memory on my system, Windows 95 gives it well over 600K by loading and running most drivers (network and CD-ROM drivers, for example) in non-Conventional memory. **QA**

Tom Marcellus

Table 1. Comparison of Q&A 5.0 for DOS running in different configurations.

Mass Update 16,667 Records	486 DX2-50	Pentium 166
In Windows 95* Full Screen Mode		
Scan/Select records	17 seconds	3 seconds
Update records	11 minutes	95 seconds
In Windows 95* Window Mode		
Scan/Select records	10 seconds	3 seconds
Update records	10 minutes	90 seconds
*With Windows 95 built-in VCACHE disk cache		
In DOS without disk cache		
Scan/Select records	14 seconds	4 seconds
Update records	23 minutes	13 minutes
In DOS with 1M disk cache		
Scan/Select records	13 seconds	3 seconds
Update records	11 minutes	3 minutes
Compile 5,000-Record Report		
5,000-record database	2 minutes	15 seconds
Display XUserselctR List of 359 Names		
16,667-record database	20 seconds	8 seconds



Figure 1. Your editor's typical Windows 95 desktop with Q&A (1), WordPerfect (2), and DOS (3) sessions running simultaneously in their own custom-sized windows. I can click on any window to bring it's program to foreground, and press Alt-Tab to run it in full screen mode.

How to Save Money on Mass Mailings

TOM MARCELLUS

If you rely on direct mail to reach customers or prospects, using Q&A and a compatible add-on utility to prepare your mailings in accordance with new Postal rules can earn you substantial discounts.



On July 1 the U.S. Postal Service's (USPS) Classification Reform program ushered in a host of new rates, classifications, and rules that affect direct mailers. Since then, *The Quick Answer* has received letters from subscribers with large Q&A-based mailing lists who want to know what they can do to meet the new requirements and earn postal discounts on their mass mailings. It would take a book—and far more know-how than I have—to cover such a broad topic, so I'll focus on the two key issues:

- Standardizing addresses in your Q&A database, including updating them with ZIP+4 ZIP codes. (See the sidebar, "What's a Standardized Address?")
- Printing Postnet barcodes on your Q&A mailing labels or envelopes.

Above all else, the USPS rewards up-to-date standardized addressing (with what it calls *Automation rates*), delivery point barcoding, and presorting. I won't address presorting since it involves a host of variables depending on the type of mailing. Your post office or mailing house will be able to give you information on it.

First, let's look at standardizing the addresses in your database.

What's a Standardized Address?

When an address is "standardized," misspelled street and city names are corrected, lowercase letters are converted to uppercase, punctuation is removed, address information is placed on one line, and the correct ZIP+4 code is added. Compare these before and after addresses:

Before	After
Mr. & Mrs. John A. Smith 5505 McArthur Apartment 5C Santa Anna, CA 92583	MR & MRS JOHN A SMITH 5505 W MACARTHUR BLVD APT 5C SANTA ANA CA 92583-2134

Standardized addresses might be fine for mailing labels and envelopes, but they look odd on "personalized" merge letters. You can maintain the more traditional name and address format for merge letters, while standardizing your addresses for labels or envelopes, but there are no ideal solutions.

You can have two sets of name and address fields in the database, and use one set for labels and envelopes and the other for merge letters. You'd format your merge letter fields for regular text (the way you enter the information in the database), your label fields for all uppercase letters, and use programming to copy the information from each field to its counterpart, removing

any periods or commas. Here's a sample program that takes "Mr. James C. McPherson, Jr." in the Name field, and places the standardized "MR JAMES C MCPHERSON JR" in the Name2 field:

```
Name2 = @Replace(Name, ".", "");
Name2 = @Replace(Name2, ",", "");
```

You could use a similar program for a company and address field that might contain periods or commas.

This won't correct street or city misspellings, place the street address information on one line, convert Apartment, Suite, and Avenue to APT, STE, and AVE, or get a ZIP+4, though.

You could program the database to abbreviate the more common prefixes and suffixes such as North (N), West (W), Apartment (APT), Boulevard (BLVD), and so forth, but this can get tricky. What if the street name is North Shore or Western Avenue?

The lengths you might have to go to make your addresses look standardized will depend on how inventive you are.

Where to start

If you mail 200 or more identical pieces of bulk mail (now called “Standard Mail”) at a time, or 500 or more identical First Class pieces, chances are you can save on mailing costs by preparing your mailings in accordance with the new rules.

Rates for First Class letters are as low as 23 cents, postcards as low as 14 cents, and Standard Mail as low as 11 cents. The rate you pay depends on the class of mail you choose, the dimensions of your mailing piece, presorting, barcoding, and other factors all covered in a USPS publication called *Max It!*.

Reading the *Max It!* guide, you’ll see that by having your addresses standardized with ZIP+4 codes and barcoding your mailing labels or envelopes, you’ll earn postal discounts, and probably get faster and more reliable delivery.

Be sure to check out the Additional Information section at the back of the *Max It!* guide. A variety of supplementary publications—from how to design acceptable mailing pieces to subscribing to USPS publications—is available for the asking.

A free lunch at your post office

The USPS offers a one-time free service that standardizes computerized address files

and supplies the two-digit Delivery Point code and four-character Carrier Route code. (See the sidebar, “What’s a Standardized Address?”) The USPS will process an address list of up to 50,000 records, and the service generally takes just a few days.

For this service, though, your address file must be in a rigorous Fixed ASCII format. Details are spelled out in the *Diskette*

Processing Request Form available from your post office, but it boils down to is this: You give the USPS what it calls an *input* file (your Fixed ASCII *export* file) on disk, along with a blank disk for the *output* file. The USPS processes the input file, and returns both disks to you, along with several reports that tell you, among other things, how many of your addresses were ZIP+4-able. If your address file is too large for one disk, you can export it to multiple files and supply it on multiple disks.

Creating the export file

Some of the fields you include in the export file for USPS processing are mandatory; others are optional. The *Diskette Processing Request Form* will help you decide which fields to include.

I’ll guide you through the process of creating a sample export file that, when processed by the USPS, will get you standardized addresses complete with ZIP+4, Carrier Route, and Delivery Point codes, along with a code that tells you what’s wrong with any address the USPS considers “defective.”

Preparing your address database

First, you’ll need to add fields to your address database for the ZIP+4 extension, Carrier Route, Delivery Point,

Table 1. Before exporting your records for USPS processing, be sure your database includes fields that correspond to the USPS Field Identifiers shown in the first column. The Q&A field names in the second column are only suggestions.

USPS Field Identifier	Your Q&A Field Name might be	Include Field?	Description & Notes	Max Length
1. Personal Name	Name, Company	Yes	Personal name or company name. If you have both, use one or the other	50
2. Secondary Address or Company	CustomerID, Client ID	Yes	Uniquely identifies each record in database. Be sure you have such a field in export file.	50
3. Main Address	Address	Yes	The main street address or P.O. Box	50
4. City	City	Yes	The delivery city	28
5. State	State	Yes	Two-character standard state abbreviation	2
6. ZIP Code	Zip	Yes	The five-digit or nine-digit ZIP+4 ZIP code (can include a dash)	10
7. Carrier Route ID	CRt	Optional output field	The four-character Carrier Route code assigned by the USPS	4
8. Add-on Code	ZipExt	Required output field	The last four digits of the nine-digit ZIP+4 ZIP code assigned by the USPS	4
9. DPBC Add-on Code	DPC	Optional output field	Two-digit Delivery Point Bar Code assigned by USPS for full barcoding	2
10. Flag	Flag	Optional output field	Defect codes for any defective addresses found by USPS	16

and defective address codes. Then, you'll create the Fixed ASCII export file the USPS needs to process your records.

You'll also create a temporary Q&A database with the same fields, and use it to import the processed *output* file(s) you'll receive back from the USPS.

Finally, you'll run a Mass Update on the original address database, using the temporary import database as the lookup file. (See the sidebar, "Don't Let Your Data Leave Home Without a Unique Key Field.")

Table 1 shows the fields you'll need in your address database. **Figure 1** shows a sample database with fields for the export file.

Depending on the fields in your Q&A address database, you might run into problems with the USPS file format. For example, it calls for a *personal name* field and provides for an optional *secondary address* field you can use for *company* names. This means that if your database contains a personal name (a contact at a company), a company name, and a secondary address field (for apartment number or the like), you'll have to decide what to include in the export file, and you might even have to rearrange your data.

The USPS file format doesn't provide for a unique record ID field, but it's vital you have one. (See the sidebar, "Don't Let Your Data Leave Home Without a Unique Key Field.")

Check with the post office that will do the processing. You may be able to use the Secondary Address field for the unique record ID. If you do, you'll first have to move any secondary address to the end of the main address with a Mass Update program like this:

```
Address1 = Address1 + " " + Address2
```

The screenshot shows a database form titled "CUSTOMERS" with the following fields and values:

- Find Key: PLETH92435
- Company: Plethor Products
- Last Name: Ferguson
- First Name: Hector
- Address1: 143 Barwick Ave
- City: Tustin
- State: CA
- Zip: 92435
- Phone: 714-722-9896
- Fax: 714-722-9877
- Mailing Use Only fields: ZipExt, CRT, DPC, Flag

Checkmarks are placed above the following fields: Find Key, Company, Last Name, First Name, Address1, City, State, Zip, Phone, Fax, ZipExt, CRT, DPC, and Flag.

Figure 1. Typical address database. The fields to include in the export file for USPS processing are check marked. (The Address2 field is optional.) The ZipExt (ZIP+4 extension), CRT (Carrier Route), DPC (Delivery Point code), and Flag (defective address code) fields will be empty in your export file.

Don't Let Your Data Leave Home Without a Unique Key Field

Before you export your address data for USPS or commercial address standardization processing, it's vital that the database include a key field—Customer ID, Client ID, Account Number, or the like—that uniquely identifies each record, and it's vital that you include this field in the export file. Without it, you might not be able to connect the returned records with your original Q&A database records, and you'll have a mess on your hands.

A unique record identifier need be nothing more than an incremented number assigned to each record in the database. The only requirements are that it's 16 characters or less, and unique for each record in the database.

Or, you can add a new Full Address field to the database and fill it with a Mass Update program like this:

```
Full Address = Address1 + " " + Address2
```

The Main Address field in the export file can be up to 50 characters, so you should have plenty of room.

If you have personal name components in separate fields ("Mr. James Smith" in three fields, for example), you deserve credit for good "databasemanship," but you'll have to combine them into a single name field for the USPS.

Everyone arranges their name and address fields differently depending on how they ultimately use the information. I can't possibly show how to make these myriad structures conform to USPS input file requirements. Suffice it to say that you can easily combine fields for export purposes (such as creating a Full Name field from First Name and Last Name fields). Just don't forget that if you have to *uncombine* them later—that isn't so easy.

Exporting your address data

When you've added the required fields to your database, and your data is arranged to accommodate the requirements of the export file covered in the *Diskette Processing Request Form*, you can create your export file(s) with the following procedure:

1. Choose File / Utilities / Export / Fixed ASCII. Type in the name of the address database, followed by the

name of the export file, such as
C:\QA\DATA\ADDRESS1.ASC.

2. At the Retrieve Spec, *exclude* any non-U.S. address records. If your database contains more than 5,000 domestic address records, retrieve the first 5,000 or so (for the first disk) using an appropriate retrieval parameter. (You might want to make a dry run first with just a few dozen records. This way, you can check the resulting export file in Write.)
3. At the Merge Spec, type the codes in the pertinent fields that will make the export file conform to USPS requirements. For example, if the first field you're exporting is Name, type *1,30* in the Name field. This tells Q&A to start the name at column 1 in the export file, and make it 30 characters long (replace the 30 with the actual length of the Name field). If the second field you're exporting is Customer ID, type *31,16* in that field, and so on for each field you want to include in the export file. When you're done, save your Merge Spec by pressing Shift-F8 and assigning a name to it such as *For USPS Address Service*.
4. Run the export. When Q&A finishes creating the export file, use Q&A's DOS File Facilities to copy it to a blank disk. Label the disk with your company name, phone number, and *Input File 1, ADDRESS1.ASC*.
5. If you need to create a second export file, repeat steps 1 through 4. Name this one ADDRESS2.ASC, and retrieve the *second* group of 5,000 U.S. address records. Reuse your saved Merge Spec by pressing Alt-F8. Copy the resulting file to a second blank disk and label it accordingly.

Repeat the procedure until all your domestic addresses have been exported.

Be sure your disks are properly labeled (including the blank ones for the USPS output files), fill out the *Disk Processing Request Form*, and take them to the post office for processing.

Create an import database

When the USPS returns its output files to you, you'll need to import them into an empty Q&A database to use as a lookup source to Mass Update your main address database.

For the empty import database, create a design-only duplicate of your address database by using the File / Copy / Copy Design only command, assigning a new name (such as IMPORT.DTF) to it. This way, the fields in the two databases will match, the unique record ID field will already be Speedy, and you'll be able to use your

saved Merge Spec to import the data from the USPS output file(s). Follow this procedure to import the data:

1. Place the first USPS output disk in your floppy drive. Select File / Utilities / Import / Fixed ASCII, enter the path and name of the USPS output file, such as A:\ADDRESS1.ASC, then enter the name of your import database, C:\QA\DATA\IMPORT.DTF.
2. At the Merge Spec, type in the same codes in the same fields you used when creating the export file. If you saved the Merge Spec you created for your original export, you can press Alt-F8 to reuse it.
3. Import the data on the first disk, then check a few records in IMPORT.DTF to be sure the data is in the right fields. If it isn't, remove the records from IMPORT.DTF and verify that your Merge Spec matches the field starting positions and lengths in the USPS output file. (See the sidebar, "When What You Get Back Doesn't Work.")

Change of Address Updates Aren't Free

The USPS's free address standardization service is not an address correction service. It won't update your address file for individuals and companies that have filed change-of-address orders. (The USPS processed 41 million of these in 1995 alone.)

Unless an *Address Correction Requested or Forwarding and Address Correction* endorsement appears on your mailing piece, you might not know that some of your customers have moved. The USPS charges you 50 cents for every address correction it sends you. With large mailings, the cost can add up.

To clean up an outdated mailing list, you can send it to a National Change of Address (NCOA) certified vendor for change-of-address updating. For a fee of \$3 to \$5 per thousand records processed, the vendor will update your file with address changes. At the same time, it will standardize the addresses and add the ZIP+4 and other codes.

An advantage to using a commercial vendor is that they support a variety of file formats—including Standard ASCII and dBASE—that are easier than Fixed ASCII, with its tedious starting columns and field lengths, to work with. Ask your post office for a copy of the *Business Partners Directory*, which lists vendors in your area that provide NCOA and related mailing list services.

4. Import any additional USPS output files (ADDRESS2.ASC, ADDRESS3.ASC, and so forth) in the same manner until IMPORT.DTF contains the data from all the USPS output files.

Mass Update your address database

The final step is to Mass Update your original address database using the information in IMPORT.DTF.

1. Backup your original address database.
2. Select File / Mass Update, and enter the name of your address database.
3. At the Retrieve Spec, select the same records you included in the original export. If you created multiple export files, select all the records included in them.
4. At the Update Spec, move to the unique record ID field, and type in an update program like the one shown in **Listing 1**, substituting your own field names.

Listing 1. Sample update program for your address database. Include the pertinent fields to be updated, and substitute your own field names.

```
#1: XLookup("IMPORT.DTF", Unique Record ID,
           "Unique Record ID",
           "Address", Address, "City", City,
           "State", State, "Zip", Zip
           "CRt", CRt, "ZipExt", ZipExt,
           "DPC", DPC, "Flag", Flag)
```

5. Run the Mass Update.

Clean up the address database

With your original address database updated, search it for any records where the Flag field isn't blank. This will reveal any defect codes added during USPS processing. (Ask for a defect code list when you pick up your disks.) If your addresses were in good shape, you might wind up with just a few defectives. Check with your post office on what to do about any defectives.

You might want to place the ZIP+4 extension field to the right of the Zip Code field for easier data entry. Or, you might prefer to combine it with the ZIP Code to create a full ZIP+4 field. For the latter, be sure the ZIP Code field is at least 10 characters wide, then Mass Update the database with an Update Spec like the following (substitute your own field names):

```
#1: Zip = Zip + "-" + ZipExt
```

If you make changes to the Zip Code field, don't forget this might affect existing mailing label, report, and other designs.

When you've corrected any defective addresses, you can use Mass Update to blank the Flag field. You'll probably want to leave the other code fields intact (you can make them read-only and place them in an out-of-the-way location on the form) in case you want to re-certify the database in the future.

Over the next six months

The USPS will give you a Coding Accuracy Support System (CASS) Report after processing your address file, which should earn you a postage discount on mailings within six months.

When the CASS Report expires, you might find it worthwhile to have your mailing list reprocessed by a CASS-certified vendor. (Ask your postal representative for a copy of the *Business Partners Directory*.) How much an up-to-date CASS certification saves you on postage will tell you if you if it's worthwhile re-certifying your list every six months.

As you add new addresses to your database, you might not have the ZIP+4 codes. If you're on the Internet, you can lookup ZIP+4 codes on the USPS's Home Page at

When What You Get Back Doesn't Work

If there seems to be a problem with the output file you get back from the USPS, you'll want to have a look at it. But you won't be able to display it in Write if it exceeds about 100K. If you don't have a word processor that can display a large file, you can use CHOPEXE—available from Marble Publications or Symantec Q&A libraries on electronic services such as CompuServe—to break it into smaller files that you can then display in Write.

One of my clients used the Secondary Address/Company field for the unique record ID. When the processed records came back from the post office, half of them had the unique ID (preceded by a pound sign and a space) tacked on to the end of the Main Address field as though they were apartment numbers, like this:

```
12344 NEWPORT BLVD # 7219
```

To correct the problem, we imported the records into the temporary Q&A database, then Mass Updated the affected ones, copying the trailing record ID to the Record ID field, then deleting it—along with the pound sign—from the Address field.

http://www.usps.gov. Or, you can access the USPS's Rapid Information Bulletin Board Service (RIBBS) by setting your communications software to 8N1 and dialing 1-800-262-9541. The drawback with these sources is that they process only one address at a time, and you have to enter them manually.

Utility programs are available that standardize addresses in batches (typically 100 or fewer). They take your ASCII export file, dial a local post office computer via your modem, and hand you back standardized addresses.

One inexpensive Windows utility that does this is Dazzle Plus from Envelope Manager Software (415-321-2640. See the June 1995 *Quick Answer*). Using Dazzle's Dial-a-Zip, you pass it an ASCII file of addresses. It connects with your nearest computerized postal facility, and returns the file with the addresses standardized. If the number of addresses exceeds the maximum the postal facility accepts in one batch, Dial-a-Zip offers to reconnect and continue processing the file. It even prints a CASS Report when processing is complete.

For fast address entry, you can obtain a Q&A ZIP Code database that automatically fills the City and State fields when you type in the five-digit ZIP code. See "Resources" at the end of the article

Barcode your mailing pieces

With your address database in shape for a mass mailing, you'll want to add Postnet barcodes to your mailing labels or envelopes.

In the September 1992 issue ("Barcoding Your Q&A Mail"), I reviewed a DOS terminate-and-stay-resident (TSR) utility called Bar Lite. I mentioned it again in the June 1995 issue ("Easy to Use Utilities Make Your Mail Look Better, Travel Faster"). Both issues are available from Marble Publications. See "Resources" on page 16.

Bar Lite Pro (USPS-certified for Postnet barcoding) is easy to use and includes support for all the popular printers. You simply install the utility and tell it what kind of printer you have and where you want it to print the barcodes. (There are several advanced options you can choose from. See [Figure 2](#).)

Bar Lite prints the full 11-digit, 62-bar Delivery Point barcode—that is, the nine-digit ZIP+4, plus the two-digit Delivery Point code, the check digit, and the frame bars.

You can load and unload Bar Lite from its setup screen or by using DOS commands or batch files. It uses 46K, and can reside in upper memory. It works by intercepting your Q&A output on its way to the printer, identifying the ZIP code (up to 11 digits), and printing the Postnet bar code at the location you specify.

Bar Lite runs only in DOS. If you're running Q&A for DOS in Windows, you must exit to DOS, start the utility, then run your Q&A print job in DOS.

Using Bar Lite with mailing labels

A typical Q&A mailing label might look like the one shown at the top of [Figure 3](#). With Bar Lite in memory, this label will print with the full delivery point bar code (DPBC) as shown in the [Figure 3](#) inset.

For the sample mailing label in [Figure 3](#), the five-digit Zip merge field is followed by a dash, then the four-digit ZipExt merge field. This could optionally be a single merge field containing the full nine-digit ZIP+4 ZIP Code. You'll get the best results with a monospace font such as Courier.

You can configure Bar Lite to print barcodes on envelopes, merge letters, postcards, reply cards—just about anything. If you're mail merging envelopes, for example, and you want the barcode to print along the bottom, you can use the utility's Manual Mode and Trigger Character feature to specify where to print the

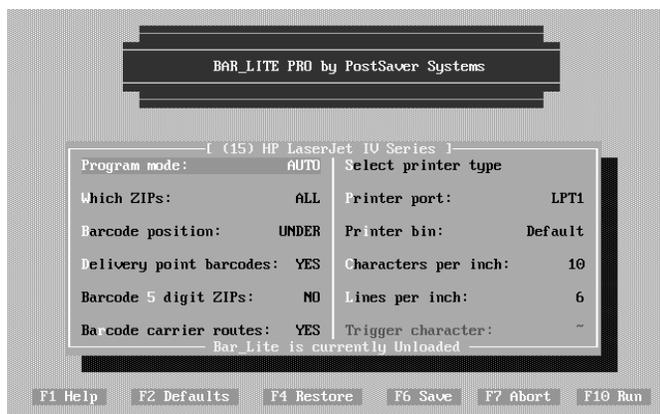


Figure 2. Bar Lite's setup screen makes it easy to configure the utility to suit your needs.

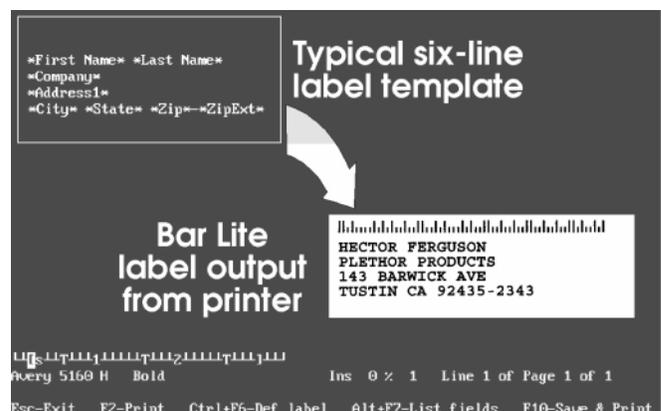


Figure 3. A sample mailing label with Bar Lite set up to print the barcode over the address block.

barcode. Bar Lite's slim, easy-to-read manual describes basic and advanced options. See "Resources" at the end of this article for information on how to order it. **QA**

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

Resources

Bar Lite Pro—\$149 (\$49 for *Quick Answer* subscribers while supplies last) from Group1 Software, 301-731-2300, Fax 301-731-0360. Mention *The Quick Answer* and Jim Karl (Group1's Manager of PC Sales) to receive the discount.

Pertinent Back Issues of *The Quick Answer*:

- September 1992—"Barcoding Your Q&A Mail." Tom Marcellus' in-depth review of Bar Lite.
- June 1995—"Easy to Use Utilities Make Your Mail Look Better, Travel Faster," by Tom Marcellus. Mainly for those using Q&A for Windows, or running Q&A for DOS under Windows, the article describes ways to standardize your addresses with ZIP+4, and barcode your mailing pieces.
- May 1991—"Grouping ZIP Codes for Bulk Mail Discounts," by Gordon Meigs. This article shows how to design bulk mail reports in Q&A that provide counts of records by three-digit and five-digit ZIP codes. Useful when presorting your database to take advantage of postal discounts.
- March 1991—"No-Fail Mail With Q&A," by Gina Novell. Contains tips on how to order lists from commercial

mailing list vendors in a format that Q&A can easily import. Also discusses the USPS address standardization service, though some of the particulars have been superseded.

Back issues are \$10 each from Marble Publications. Order all four back issues postpaid for only \$29.

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