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Creating Tab Pages in Q&A for Windows

ERIKA YOXALL

If your database contains lots of fields in logical groups, here's an eyepleasing screen layout approach that makes viewing, adding and editing records a lot easier.

A nifty widget appearing in many Windows programs is what's called a *tab control*. A tab control contains several tabbed pages, each of which contains a group of other widgets (fields, checkboxes, pushbuttons, and the like). If you're using Windows 95/98 or 2000, right-click on a desktop shortcut then click Properties. You'll see that the Properties tab control for the shortcut contains at least two tabs—one named *General* and another named *Shortcut*. The Properties tab control for DOS program shortcuts normally contains six tabs. Tab controls are built to make lots of fields and information available in a very compact space. They allow information and fields to be organized into sensible groups so that they can be presented in a less intimidating and more intuitive way than showing a great many questions or setting options on a single huge screen.

I recently worked with a client with a Q&A for Windows database containing about 140 fields. He was working off his minimally-formatted Master Form, meaning that the fields were somewhat grouped and there were some boxes around certain groups. The entire form was in black and white and Courier text. The layout was 25 inches (about seven screens) long. The form tended to be used in chunks. A data entry person would go through first, entering data in the first group of fields for 50 –100 records. Later, another person would go through the same records, entering information in the second group of fields. Regularly, another person needed to enter only payment information in another group of fields. And so on.

Needless to say, the form, in that condition, was cumbersome, difficult to navigate and fairly non-intuitive.

The database was an excellent candidate for a tab control. Each user could switch to the tab they needed and have to deal only with the fields in that group. The section they were working on would always be at the top of the page. The rest of the information on the record would still be at their fingertips, but their main screen focus would be what they were currently working on. Just one little problem—Q&A for Windows doesn't have any such thing as a tab control.

Okay. Maybe you could make something in Q&A for Windows that

Figure 1. A tab control setup for a database in Q&A for Windows. Each tab and its associated form is a different color. The group of fields at the top always shows regardless of which tab you're on.

New Database Product Announced.
International Q&A Conference in January.

A team of Q&A users and consultants (names you will recognize) has formed a company called Lantica Software LLC. The company is currently developing a new database produce as a successor to Q&A that will provide a bridge to the future for the Q&A community. This product will be programmable, include macro-like automation capabilities, be client/server oriented, and have the ability to run on all Microsoft operating systems as well as on Web servers. It will be as easy to use but more powerful than the Q&A you're now using. Though still early in development, the product, as envisioned, will convert Q&A databases, including forms, data, indexes, programming, reports and more. Further information will be supplied as development continues.

In the meantime . . .

Marble Publications, publisher of *The Quick Answer*, and the Worldwide Q&A Users Group, in association with Lantica Software LLC, proudly announce that the **International Q&A Users Conference 2001** (in past years called the "Q&A Users Group Bash" and "Q&A Masters Seminar") will be held January 12-14, 2001 in Orange County California. The theme of this conference will be: ***Q&A and the Future … Expanding the Functionality of Q&A Now and Migrating to Lantica Database Products in the Future.*** The Lantica Software LLC product development team will be introduced and features of the new product will be demonstrated. Attendees will be able to sign up as beta testers and receive discounts on advance purchases of the new product.

Attendees will also receive in depth training in the following areas:

• Using third party utilities to extend Q&A's capabilities (including John Dow's "DTF" products).

• Running Q&A in today's operating systems and networks, including Windows 2000 and Windows NT.

• Printer and printing issues.

• Integrating Q&A data with Microsoft Office products.

This is a must-attend event for all users/developers whose companies, organizations or departments currently depend on Q&A for DOS or Q&A for Windows applications.

Your host and Master of Ceremonies for the **International Q&A Users Conference 2001** will be *The Quick Answer's* Editor and Publisher, Tom Marcellus.

For more details on the event and location and to register, visit **www.quickanswer.com** on the World Wide Web.

We hope to see you at the most dramatic and informative Q&A event ever!

looked, worked and behaved like a tab control. It turns out that you can. (See Figure 1.) (For an easier way to navigate a Q&A for DOS 5.0 form containing multiple pages, see the sidebar on the next page.)

Laying it out

Tab controls are meant to show information in groups, so the first thing you need to do is break your information into groups. The client's business is custom tapes for on-hold telephone systems. Each record in his database contains information about a particular order. His database broke into the following groups:

Order—information about the order itself.

Client—information about the client placing the order.

Tape—information about the format and contents of the tape ordered.

Status—information about the progress of the tape through the production system.

Payments—information about payments and commissions for the order.

Credit Card—information about the client's credit card.

Notes—general notes and comments about the order.

The Order group contains information (such as the Order Number) that needs to be visible regardless of what tab you're on, so I wanted it outside the tab control. The other six groups each need to be on a tab page with a way to navigate between them by clicking on their tab.

Building the base

A tab control is actually a large box that displays information. Lined up along the top of the box are smaller boxes that contain the tab labels. When you click on a tab, all that actually happens is that the contents of the large box are redrawn to display the new information and the highlighting on the smaller boxes changes to make the one you clicked on look "popped-up." It's similar to the highlighting on command/script buttons that make them look three-dimensional, where they put a white line along the left and top sides and a black line along the bottom and right sides to make the button look as though it's raised above the background

Each of your tab pages will actually be a separate form. I have six tab pages, so I need to build six forms. Each form is named for the tab it represents. Each form should be the same size and have the same background color and elements such as titles. Any group of fields containing information that should always be visible (in my case, the Order group) should be laid out and placed in the same location on each of the forms. This will help make your application look like a single form that's simply switching between tab pages.

Using the Scripting Assistant, create and save a script for each of your forms. Each script simply says *Use form MyForm*. For consistency's sake, I name the script that uses a form the same as the form. I now have a form and a script for each of my six tab page groups.

Making the tab pages

On each of your forms, draw a rectangle using the Rectangle tool. Make it as large as is necessary to contain all the fields in the largest group. Give it a nice heavy border, so it stands out. I like to make each of my tab pages a different color by changing the fill color on the rectangle. It's better visually if the tab page on each form is the same size as all the others and is placed in the same position. Make sure you leave enough room above the tab page for the tabs themselves.

Place the fields for each group on the appropriate form, inside the borders of the tab page. Lay them out as you would on any other form. Once you are satisfied with the layout of each of your tab pages, you can add the actual tabs.

Making the tabs

A tab is simply a place to click that tells Q&A that you want to switch forms. However, to make it really look good to the user, it should *not* look like you're switching forms. Here's where we'll employ some visual tricks to conceal what Q&A is actually doing.

On each of your forms, you need to place a row of tabs. I'll tell you how to place the tabs across the top of your tab pages, but you can just as easily place them along the sides or the bottom.

On each of your forms, draw a rounded rectangle using the Rounded Rectangle tool for each of your tab pages. I have six tab pages, so I need six rounded rectangles (tabs) on each form. (See Figure 1.) Make the fill color on each tab the same as the tab page it represents. All the tabs should be the same width, wide enough to contain the longest form name. All the tabs should be the same height, tall enough to contain the text size you choose, plus enough to overlap the tab page. The tabs should appear in the same order on all your forms. The tab for the form you're currently on needs a thick border; each of the other tabs needs a thin border. Lay out the tabs so that they're top-aligned and butted right up against each other in a nice even row of rounded rectangles. On the tab for the current form, place bold text using the Text tool, with the label for the current form. On each of the other tabs, place a script button using the Script Button tool with the script you created earlier for the appropriate form attached. You should now have a neat row of rounded rectangles, one with a text label and the rest with script buttons.

Pick up the entire row and place it at the top of the tab page. The left edge of the row should be slightly indented from the left edge of the tab page. The bottom edge of the row should overlap the top edge of the tab page enough

so that the top border of the tab page cuts between the bottom border of the tabs and the script buttons.

Using the Arrange Menu, send the tabs to the back, then bring them forward until they are above the background, but beneath the tab page.

One more little detail
You need one finishing touch to really make this work. On each form, draw a small rectangle using the Rectangle tool. Make its fill color the same as the current tab page. Place and size it so that it covers up the portion of the tab page's top border that runs along the bottom border of the

tab for the current form, creating the illusion that it's all one piece, like index card dividers with the tabs on the top.

You should now be able to switch to Add/Edit mode and, by clicking the script buttons on the tabs, switch between tab pages in a way that looks very clean and seamless. One final note: Adding all those forms to your database does add some overhead. If your application is large and becomes sluggish, a few less tab pages and/or a little more RAM should do the trick.

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Tips for Navigating Multi-Page Databases in Q&A for DOS

Q&A for DOS allows a database form to have up to ten pages. While this gives you a lot of screens to work with, a multi-page form can be cumbersome to navigate. Here are some suggestions for making your multi-page database easy to use.

Field layout
Group your fields sensibly. Wherever possible, make sure that each page only deals with a single group of fields and that groups do not split across pages. For example:

    Page 1—Customer Account Information
    Page 2—Transaction History
    Page 3—Action items and contact notes

Use graphical elements
Use Q&A's Line Draw (F8 / Layout Page/ Draw) to draw lines and boxes to separate groups of fields, for example, to separate the Billing Address information from the Shipping Address information. This makes it easier to visually focus on what you're trying to do or find.

Design with easy navigation in mind
Make it easy to move between pages. A simple way to do this is to place an invisible one-character *Home* field in the upper-left corner of each page defined with < >. This will allow quick navigation simply by pressing the PageUp and PageDown keys.

You can also place a "jump box" on each page. A jump box is a Userselect list (available only in Q&A 5.0) of locations on your form. When you choose a location from the list, you're "jumped" to that location on your form. You can design this feature into your database this way:

1. On each page of your form, define a three-character wide field using < >. I like the upper-right hand corner. Label it

appropriately (*View Page*, *Jump to*, *Location*, etc.). Make it a center-justified text field (TJC). At the Change Palette Spec, set its text and background colors to stand out from the rest of your form. At the Initial Values Spec, set its initial value to ASCII character 31 (▼). This will create a field on each page of your form that mimics a Windowsy dropdown menu button.

2. At the Program Spec, program each jump box field with on-entry programming that offers a list of possible locations, then resets the jump box and uses a Goto statement to jump to the selected location.

```
< JumpBox1:
JumpBox1 = @UserSelect("Account
Info;Transactions;Action Items");
If JumpBox1 = "Account Info" Then
{
   JumpBox1 = "▼";
   GoTo AccountInfo };
If JumpBox1 = "Transactions" Then
{
   JumpBox1 = "▼";
   GoTo Transactions };
If JumpBox1 = "Action Items" Then
{
   JumpBox1 = "▼";
   GoTo Action Items }
```

This allows you to jump directly to where you need to be on the form without having to page up and down through it or remember which page contains the information you need.

A Safer Backup Method

BY DAVID DVORIN

Making back ups of your databases might not be enough. What if you've been backing up a corrupted database when everything goes boom?

WHEN your business depends on Q&A for its operations, protecting the data is a priority. Using Q&A's Backup option from the File / Utilities menu provides some peace of mind. However, there is still a data risk that should be addressed. In this article, I explain the risk and a backup method that adds an extra layer of safety.

Before I begin, let's first go into some background information about how Q&A stores your data and the issue with using Q&A's built-in Backup option.

Q&A database components

A Q&A database is made up of three components. One component is the index where your Speedy Fields are stored. Like the index in the back of a book, Q&A's index provides a way for Q&A to retrieve records in a faster and more efficient manner. The index is stored as a separate file named after the database with an IDX extension.

Another component to a Q&A database is its structure. You see the structure as a form and the fields within the form. The structure is stored in a file named after the database with a DTF extension.

The last component to a Q&A database is the actual data. This is the information entered into the Q&A database structure. Q&A stores data with the structure in the DTF file.

Backup problems in Q&A land

Q&A offers a backup mechanism via the Q&A menu system. Executed from the File / Utilities menu, it walks you through the steps of copying your database to another location/name. Q&A only asks you for the database name. In return, it copies for you both the DTF and IDX files making up the database. (Q&A for DOS also comes with a utility called QABACKUP. However, as noted by Alec Mulvey in the December 1999 issue, QABACKUP is not Y2K compliant and should no longer be used.) Most other backup tools also work the same way—copy the DTF/IDX files to another location, another disk or a tape. The central issue I raise with using this method is that because the data and structure are stored together, if the structure of the database is corrupted, then you are at risk of losing access to the data.

This is extremely important because of the three components to a Q&A database, the data is clearly the

DOS

most valuable. You can recreate a database. It might be a pain but it can still be done. But how long would it take to replace your data? With the value of the data being so high, you should have a way to save it outside the confines of Q&A and the database structure.

A better backup strategy

There's a better backup strategy. It consist of two components. The first is an empty shell of your database (just the database design or structure, no records or data). The second is having your records saved in a file that's independent of that structure. Should a situation arise where you need to restore your database from your backups, you simply take the records that are stored in the Q&A-independent format and import them into a copy of the empty database. Since the empty database is free from corruption (see the sidebar) and you know the records are independent of any Q&A structural issues, bringing them together ensures the resulting database is also free from corruption.

Preventing Corruption

Q&A 5.0 databases are more prone to corruption than other versions of Q&A, particularly after you've redesigned one. Redesigning a database creates a new "generation" that can conflict with previous "generations." (For more on this topic, see Alec Mulvey's "Recognize, Repair & Prevent Database Corruption" in the November and December 1998 issues.)

One way to prevent this kind of corruption is to follow a few simple steps after you've redesigned a database (added, deleted or moved fields).

1. Open and resave every report in the database. Look for garbage characters in the last field of each Report Retrieve Spec and remove any you find.

2. Open the Initial Values Spec, clear any @Date and @Time initial values, resave the Spec, then reinstate the values.

3. Run a *null* Mass Update (leaving the Retrieve and Update Specs blank) to bring all the records to generation one.

4. Run Recovery on the database.

—Ed.

@Help

Can't Copy a Database's Design

I've been trying to copy the design of a Q&A database. Q&A displays the usual message, "*This may take several minutes…*", but it never finishes. I've tried running Recovery on the database, which works, but doesn't solve the copy problem. I've redesigned part of the database and saved some minor programming changes. All to no avail. Could the copy process take a huge amount of time—an hour or more—and I'm just not giving Q&A enough time? I'm running Q&A 5.0 on a 500 MHz PC with Speedfix installed.

Henri

No—Q&A will *never* take hours to copy a database's design. What you have is a corrupted database. Database corruption in Q&A 5.0 can be sort of tricky. It can be hidden in places that Recovery overlooks and can be very difficult to pinpoint. One of the best tools around to locate corruption in a database is John Dow's DTFDOCTR program. My best suggestion is to first look in two places: (1) individual report Retrieve Specs and (2) the Initial Values Spec. Go through the redesign steps for each report and examine the last field in the database at the Retrieve Spec screen. If the report is corrupted, chances are you'll find meaningless or garbage characters in this field. Make sure to check all your reports since this type of corruption only needs to appear in one of them to cause the type of problem you're experiencing. The second area, the Initial Values Spec, is a little more obscure because you can't actually see the corruption there. However, if you upgraded the databases from Q&A 4.0 and didn't follow the proper procedure, the Initial Values Spec could very well be corrupted. The only way to fix it is to display the Spec and remove any @Date and @Time values then resave the Spec by pressing F10. Then, Recover the database and copy its design (if Initial Values were the problem, you'll be able to now) to a new name. After you have the new database, reinsert the Initial Values where they belong. One of these methods should do the trick.

Protecting Your Network Setup

We have 25 users on Q&A 4.0. We've been using it for 10 years and are now upgrading to Windows 98. Is there any way to lock the Alternate Programs or Global Options? It seems that someone will type "U" then an "A" (Utilities / Set Alternate Programs) and be at the Alternate Programs setup screen where they can wipe out or overwrite the macro identifiers there. Is there a way to lock users out of this screen?

Craig Cohen

There are two ways to do this—one simple, one a bit more complex. The simple one first. If everyone is using the same copy of Q&A with Netpacks and *no* personal path startup switches (in their Q&A command line shortcuts), make a copy of the file QA.CFG in the Q&A program files directory and call it QACFG.CPY. Then start Q&A with a batch file that looks like this:

```
@echo off
Q:  (drive where Q&A program files are stored)
cd\qa5  (directory where Q&A program files are)
copy QACFG.CPY QA.CFG
qa.com
exit
```

This will refresh your Q&A configuration file to its original form each time someone starts Q&A. (This is where Q&A stores the information about your Main menu's Alternate Programs.) Remember, though, if you change anything involving configuration in Q&A and want to save these changes, you will have to make a new copy of QACFG.CPY.

As for the second method, you can use the Q&A's Custom Menus facilities to replace Q&A's Main Menu with one that doesn't have the *Utilities* selection on it. This way, no one will be able to access your Alternate Programs setup screen. You get to the custom menu facilities by pressing Shift-F2 and selecting *Create Menu*. At the *New Menu* screen, select *Q&A Main Men*u by pressing alt-F7. You can then create a replacement Main menu containing just the choices you want. Several *Quick Answer* back issues have featured articles on custom menus. (You can search for them at www.quickanswer.com). At the same site, you can also order my Special Focus Series Report on *Q&A Custom Menu Systems*.

'Drive Door Open' Error Message

We are getting a *"Drive door open"* error message in Q&A at least once a day on a Windows 98 network. We have a server plus six workstations. The server is not used for anything except for storing and recovering files and checking them with John Dow's DTFDOCTR. After recovering the offending database (Invoices, the most used file) the system will run flawlessly for a day or so and then the error message starts reappearing. It has appeared in two other databases, but rarely. I've have checked out every database in the system with DTFDOCTR every time this error comes up. Nothing has ever turned out to be corrupted.

I'm baffled because the error seems to occur on only two of the three Pentium I 233MMX workstations. The third one has never gotten the error. Three other workstations are Pentium II's (two are laptops) and one is a Pentium III. The server is a Pentium II.

I read in the June 2000 issue of *The Quick Answer* that Lesspace must be installed on all workstations when the files are located on a server whose hard disk is larger than 1.99GB. I checked all this and set up Lesspace on those workstations that weren't using it. All workstations except one load Q&A 5.0 from the server. The one that does not is one of the units that gets the error. *[Bob continues with the further testing he has done.]*

I've tried to be as thorough as possible in checking the system. I hope that you or someone out there can help as nothing I've tried has worked.

Bob Brandt

In light of all the testing and reconfiguration you've done, we're sure that the problem is not with the drive size or Q&A. Since the error message is random in nature and occurs only on certain machines (which are set up like all the rest), this is most likely a hardware issue—a intermittant problem with a faulty network card, hub or cable. These things will normally produce the "Drive door open" message since Q&A can no longer see the drive. This is especially the case if no other computers on the network are having the problem. We've seen this too many times to ignore it.

Network (User) IDs Don't Stick

I can't get the Network IDs to stay as assigned to each workstation on our network. They always revert to the same Network ID for everyone. Any way to correct this?

Bob Brandt

Your Network IDs (Utilities / Global Options) aren't sticking as they should because everyone on the network is using the same copy of Q&A and the same QA.CFG file (where the Network ID is stored). The QA.CFG that exists when the last person exits Q&A is the one that's saved. You can correct this by using the personal path switch and setting up a personal directory for every user on the network. For example, set up directories under Q&A for each user, using paths like these:

```
Q:\QA5\USER1
Q:\QA5\USER2
Etc.
```

Then run Q&A from each workstation like this:

```
Station 1 - qa.com -pq:\qa5\user1\
Station 2 - qa.com -pq:\qa5\user2\
Etc.
```

Put a copy of the QA.CFG file in each of the directories before you run Q&A the first time and then reset the Network ID on each workstation. From then on, your Network IDs will stay intact.

Q&A Win Won't 'Print to Disk'

I'm writing a Q&A database application to draft standard wills which I want to print via a mail merge using Q&A for Windows' word processor. Occasionally, I need to make changes to the standard wording of a will. What I would like to do is print the standard will to DISK with the merged data, then edit the will. This will also allow me to keep a copy of the completed will with the merged information on disk for future editing. I've tried to do this by setting up a printer to *print to file* (which produces a *.prn file), but when I try to read the file (with various word processors including Q&A Write for Windows, Word 2000 and Lotus WordPro), all I get is garbage characters.

Daniel Kirsh

Q&A for Windows doesn't support printing to DISK (to an ASCII text file) as does Q&A for DOS. You had a good idea in setting up a printer to print to file, but printing a document to file in a Windows program is not the same as printing it to disk in a DOS program. Unlike an ASCII file, a .prn file contains all the document's formatting codes so that you can just copy the file to the printer (using a DOS Copy command such as *Copy edswill.prn lpt1*) and it will print looking the same as it would if you had printed it from the program in which it was created. But you can't edit or read a .prn file because it contains binary data. The only way around your problem is to install a copy of Q&A for DOS and use its *Print to DISK* feature for your merge printing.

Q&A Identifiers

I've been called in by some lawyers to try to help with a court case that one of their clients is having with an ex-partner of his. A very important aspect to the case hinges on the date that a database was first created. Is there any way to tell from the file when it was first created? I would appreciate any info that you can give regarding whether this date is stored somewhere in the database. Also is there a way to tell the serial number of a set of installation disks?

Backups...

Infrastructure issues

Before we get into our new backup method, consider where you want to store the backup material. If you're on a network, you have the option of putting your backup files on a different hard disk. This provides a level of safety if the disk containing Q&A decides to crash. If you're not on network, then consider placing the backup files in directory that stores on backup material to make it easier to locate and manage. For example, if your Q&A installation is in C:\QA, then consider placing the backup material in a directory named C:\QABACKUP.

Creating empty shells

Creating an empty shell of your database is straightforward. Its significance is reported by Cliff Sobin in a November 1999 QuickTip, "Backup Your Form Design Independently of Your Data." The following is a step-by-step procedure to do this from the Q&A Main menu:

1. Select F for File

2. Select C for Copy

3. Enter the location/name of the database you wish to copy

4. Select D for Copy Design Only

5. Enter the location/name of the empty shell you wish to create

You should be placing the empty database copy in a different location than the original, so you can use the same database name.

Just to make sure the copied empty database is in its best condition, at the very least run a Recover on it by executing the following from the Q&A Main menu:

1. Select F for File

2. Select U for Utilities

3. Select R for Recover a Database

4. Enter the location/name of the empty shell you just created

5. Press F10 to confirm the operation

Creating Q&A-independent data files

Q&A has the ability to export its records to a variety of formats. One of the formats is called Standard ASCII (American Standard for Information Interchange). Exporting your data to the Standard ASCII format provides the added safety layer we want in our backup because the data is stored in a plain text Q&A-independent file that's virtually corruption-proof. You can open an ASCII file in any text editor or word processor such as Q&A Write or Word and see all the database records. However, we're talking only about the data. The database structure is not included, which is the whole point to this added layer of safety.

The steps to export your data to Standard ASCII format are clear-cut. You can even do this when others are using the database. Starting from the Q&A Main menu:

1. Select F for File

2. Select U for Utilities

3. Select E for Export

4. Select S for Standard ASCII

5. Enter the database location and name

6. Enter the resulting Standard ASCII file's location and name

7. Press F10 at the blank Retrieve Spec to export all records

8. Press F10 at the blank Merge Spec to export the fields in the same order as the form

9. Press F10 at the ASCII Options screen, leaving the default values in place

Q&A will then create the Standard ASCII file containing just your database records.

When naming the ASCII file, I use the name of the database but with a .DAT extension. This way I know what ASCII file goes with what database.

A backup macro

The backup procedure I've just outlined takes more than a few keystrokes. However, since the steps are always the same for a given database, the backup procedure easily lends itself to a Q&A macro. Here's an example:

```
<begdef><altB><name>"ASCII Backup Operation"<vidon>
<esc><esc><esc><esc><esc><esc>
fues
<home><ctrlY>C:\QA\DATA\CUSTOMER<enter>
<home><ctrlY>C:\QABACKUP\CUSTOMER.DAT<enter>y<enter>
<f10><f10><f10>
<esc><esc><esc><esc><esc><esc>
w<enter>The Backup macro has completed.
<enddef>
```

After creating this macro (whether you record it or compose it in Write), save it to a file named BACKUP.ASC in your Q&A directory. For example, C:\QA\BACKUP.ASC.

This simple macro assumes the following:

• Q&A's Automatic Execution (Utilities / Set Global Options) is set to Yes.

- The macro is backing up a database named CUSTOMER and stored in C:\QA\DATA. Change that string of characters in the above macro to your own database location/name.

- The macro is creating an ASCII data file named CUSTOMER.DAT and storing it in the C:\QABACKUP directory. Change that string of characters in the above macro to accommodate your database file location/ name.

- CUSTOMER.DAT already exists in C:\QABACKUP. Before you run this macro the first time, you need to have a file named CUSTOMER.DAT in the C:\QABACKUP directory. To do this, simply copy any file to C:\QABACKUP as CUSTOMER.DAT. It doesn't matter what file you use. The only thing that matters is that a file named CUSTOMER.DAT exists the first time you run the macro.

- Any password-protected database has to have been already logged into. In addition, it's important to note that any valid user has sufficient rights to perform the backup—no matter what other rights the user has.

Backing up with the macro
To backup from the macro, simply execute the following steps:

1. Press Shift-F2.

2. Select G for Get Macros

3. Enter the name and location of the macro file (for example C:\QA\BACKUP.ASC)

4. Press Alt-B.

 You can perform these steps from anywhere in Q&A. How long the backup will take depends on the size of the database. The larger it is, the longer it will take.
 When the macro is completed, your .DAT file will contain all the records from your database. The operation overwrites the previous backup. In addition, the macro displays a final message in Write: "The Backup macro has completed." This of course isn't a confirmation that the backup was successful. It simply indicates that the macro is done. To ensure the backup was successful, check to make sure the date and time of the .DAT file matches the date and time when the operation was last run. Incidentally, pressing the Esc key will stop the backup process without putting any data at risk.

When disaster strikes
Now that you have a procedure for creating better backups, let's go over what you should do when you need to use them in a restore operation. In a nutshell, you simply import the Standard ASCII file into your copy of the empty database shell. Remember, you always want to

keep an empty copy of the database around—*an empty copy whose fields are in synch with the data in the ASCII backup file*. And you want to work with a copy of that empty database. Here are the steps from the Q&A Main Menu.

1. Select F for File

2. Select U for Utilities

3. Select B for Backup Database

4. Enter the location/name of the empty database shell

5. Enter the location/name of where you want the restored database

6. Select I for Import

7. Select S for Standard ASCII

8. Enter the location and name of the Standard ASCII file containing the records you want to restore

9. Enter the location and name of the copy of the empty database

10. Press F10 at the Merge Spec to import the records exactly as they were exported

11. Press F10 at the ASCII Options screen to keep the default settings.

 It's important to understand that the import process appends records to the existing database. It does not replace anything. For example, if the database is initially empty, then the restore operation recreates the database as of when the backup operation took place. On the other hand, if the database is the same one as the one that created the *.DAT file, then the import is going to append the imported records to a database that already contains them.
 Should you wish to restore only a selected set of records from the .DAT file, there are a number of options. Here are three:

- Edit the *.DAT file in Write (or Word if the *.DAT file is too large for Write) so that it contains only the records you want restored. Just make sure the edited file is saved to ASCII file format (Ctrl-F8 in Write, Save-As MS DOS Text with Line Breaks in Word).

- Do a full restore into an empty database and then remove the unwanted records using Q&A's File / Remove / Selected Records command.

- Do a full restore into an empty database, then copy the selected records into a final destination database.
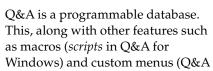
Q&A Basics
Programming Basics, Part 1

ALEC MULVEY

Q&A is a programmable database. This, along with other features such as macros (*scripts* in Q&A for Windows) and custom menus (Q&A for DOS only), means that Q&A is much more than just a convenient tool for storing and retrieving data. Don't be intimidated by programming. Unlike some other database managers, you do *not* have to learn a programming language. You'll find in this primer that simple programming is just that— *simple*. And the learning curve is not a steep one.

Form programming

Q&A stores programming in the Program Spec. (File / Design / Programming / Program form). This Spec looks just like a blank database form with all the fields. This is because, in Q&A, your programs are connected with specific fields and are executed on a field-by-field basis. In other words, programs are always *field-specific*, even though a program in one field might change the information in some other field.

Programming statements usually start with a number preceded by a pound or hash character, called a *logical field number* (for example, #320). This number identifies the field for programming purposes and also controls the order in which programming statements are carried out.

The physical order of the fields in the database form is irrelevant. If the last field has the field number #1, then that will be the first programming statement to be executed.

TIP: Number the fields in tens, for example, #40, #50, and so forth. That way you can insert, say, #45 in another field at a later time without having to renumber the fields.

Follow these steps to program a database form:

1. Select File / Design a File / Program a File

2. Enter the name of the database

3. Select Program Form

4. The Program Spec is displayed. Type your the programming statements in the pertinent fields. (Press F6 to expand the field if you need more room.)

5. When you're finished, press F10 to save the spec

TIP: If you make an error, Q&A will not save the Program

Spec. It will display a message that the syntax ("grammar" of the programming language) is wrong. Look at where the cursor is—it's usually at or just after the error. Common errors are lack of closing parentheses or quote marks where required and invalid field names (see below).

Examples of programming statements

In a program, one field can reference another. For example, to set field #30 equal to field #10, your program would look like this:

```
#30 = #10
```

You might use a program like this to fill a "mirror" field that would show key information such as the customer name on a subsequent page to remind you whose record you are viewing.

You can perform arithmetic on numeric fields, For example:

```
#60 = #50 + #40
```
or
```
#60 = #50 * 1.175
```

You can perform conditional tests:

```
#60: IF #50 > 2500 THEN #60 = #60 + #40
```

Text fields can be joined together:

```
FullName:  #80 = #60 + " " + #70
```

Note the space between the quotes to separate the first name (#60) from the last name (#70).

Be careful of data types

One problem that novice programmers often encounter is the failure to be cognizant of data types. The data type of a field is the field's format setting as defined in the Format Spec (File / Design / Customize / Format Values. A database might contain Number fields, Date fields, Text fields, and so on. Usually, most of the fields in a database are Text fields.

You can add number fields together with programming and get a numeric total. If you add text fields together, Q&A will concatenate their values (combine them into one long value). However, if you were to add these two data types in a programming statement, you'd wind up with just the number. One way round this

is to convert the data type using the @Str (pronounced *at string*) function. @Str converts non-Text values to text. The @TN function can be used to convert number-like Text values to actual numbers. There's a full range of functions to convert to dates, to Yes/No, and the like.

For example, suppose you wanted to place a field on page 2 that shows the company name (#70) and the reference number (#10, a number field), separated by a hyphen. A statement like this would do the trick:

```
#200 =  #10 + "-" + @Str(#10)
```

The result in field #200 would look like this:

```
Marble Publications-3580
```

Calculation modes

You can control when your programming statements are executed. This is called *calculation* or *calc mode* or, even though the programming may not actually carry out any arithmetic calculations. You can set calc mode to manual or automatic.

Manual calculation

In manual calc mode, programming statements are executed *whenever the calculate key, F8, is pressed*. This can be desirable if the database has many and complex programming statements.

Automatic calculation

In automatic calc mode, all programming statements are executed *whenever the cursor leaves a field whose value has been changed.* This can greatly slow data entry down if the database has many and complex programming statements, though it does have the advantage of letting you see correct results as you move from field to field, updating information. If your database has a modest amount of programming, calculation mode can usually be left at automatic.

To change calculation Mode:

1. Get any database record on-screen

2. Press Shif-F8

3. Select *Manual* or *Automatic*

4. Press F10 to continue

The selected programming execution mode is now set for this database, unless and until it is changed again. The calculation mode is stored with each database.

Conditional statements
IF..THEN
A calculation can be conditional upon the contents of a field, or the result of a calculation elsewhere. All conditional statements must contain an IF and a THEN. Here's a sample statement:

```
IF  #30 = "London"  THEN  #40 = "Local"
```

IF..THEN..ELSE
A conditional statement, as above, can do one thing depending on the result of a test. It can be expanded to do another thing if the test fails. This is done by adding an ELSE to the statement:

```
IF  #30 = "London"  THEN  #40 = "Local"  ELSE  #40
= "Distant"
```

Field Names
As an alternative to using field numbers in programming expressions, you can use Field Names.

Field *Names* are the same as the Field *Labels* when you first create your database, but they can change. It's important to understand the distinction.

A Field *Label* is the text which precedes the field in the database form. For example:

```
Eligible for Quantity Discount?:
```

This label really conveys what information the field is designed to store, but it's unwieldy to use in programming and would create an extremely wide column in a report. So, you might want to change this field's *name* to, simply, **Discount.** Follow these steps to set Field Names for the fields in a database:

1. Select File / Design File / Program a File

2. Enter the database name

3. Select Set Field Names

4. With the Field Names Spec displayed, type in names for any fields you want.

5. When you're finished, press F10 to save the Spec.

TIP: It isn't mandatory for a field to have a label. If a field has no label, Q&A assigns it a field name starting with F0001 for the first label-less field, F0002 for the second one, and so on. *Do Not* use these names in programming, because if you add another un-labelled field to your database, Q&A will renumber all un-labelled fields sequentially, so F0002 might become F0003 and your programming won't work! Be sure to assign field names to all un-labelled fields.

Next month, I'll show how to use field names in programming to make your programs more readable. I'll also show another way to control when your programs execute using on-field-entry and on-field-exit settings.

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Error Codes and Database Structure Problems

Q&A might display an error code when a database problem arises. Below are error code groups that indicate problems with a database's structure. The backup method described in this article provides a means of recovering from the problem.

- Error codes starting with 02 and 05 imply problems with Q&A's index or .IDX file.

- Error codes starting with 03 indicate damage to the database engine.

- Error codes starting with 04 indicate the database is corrupted in some way

- Error codes starting with 06 and 08 imply problems with the database structure or .DTF file.

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@Help...cont'd from page 7

This is required to ascertain whether the client's ex-partner used the same set of installation disks to install Q&A on his computer. In other words, is it possible to match the serial numbers of an installed copy of Q&A with a set of installation disks?

David Flaks

As far as telling when a database was first created—you're out of luck. We cannot find any place where this information is stored in the .dtf or .idx file. (Windows, in a file's Properties, will tell you the file creation date, but that date is reset to the current date if the file is moved to a new location.) As to your second question, in Q&A for DOS' System Information screen (press Ctrl-F3 at the Main menu), you'll find a network serial number (even on single user copies). This number seems to be unique for each set of disks from which the program has been installed. Therefore, two people using the same copy should see the same number.

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First Class