Randolph

More Adventures in TAOS

By William Baker

At first Randolph and I looked at TAOS as a convenient front end for Extended Utilities. For example, it is much easier to write a TAOS statement using the CHOOSE verb than to write a menu using the EUS Menu System and BBˣ CALLs. In TAOS you can write one command to create a menu with three choices on it:

```
choose a$ from "x", "y", "z";
```

Using EUS I had to define a menu with the Menu System menu designer, give each menu a name and keep track of what file it was in, and so on and so on.

After studying TAOS a bit, it was clear to me that TAOS was designed to be more than a front end for the EUS toolkit. Randolph got enlightened on this subject, as so often happens, because of a complaint from a customer. He told me that he upgraded a system to use TAOS-generated menus, and the customer complained because the new menus were slower than the old ones.

Randolph told me, "I explained to him that there was more overhead in using the new menus, but they were nicer with boxes and little messages at the bottom of the screen. He said he didn't care about boxes and messages, he wanted the plain old menus that were faster."

"Was there that much of a difference?" I asked.

"Not enough for me to see, but he said he had timed it with a stopwatch, and it was half a second slower."

"With someone who is such a nut about speed, I wouldn't leave the two systems installed at the same time so he could compare them easily."

"I tried that. I took the old programs off, but he restored them from a tape so he could run this stopwatch test on them."

"Sounds like a real bad case," I said. "Is he the type who buys every new product he can to speed up his computer?"

"Oh no, he's on a very tight budget. This forces him to only upgrade when something breaks. He still has a '386, and says my slow software is dragging it down."

"Sounds like the kind of customer who is hard to please. In cases like this I've found it best to distract people from the issue that's bothering them and get them focused on something more positive."

Randolph brightened a bit at my suggestion. "So you think I should offer him food? Maybe we can have some cucumbers and radishes, with a little salt. Say, can I have one of those salt packets you have piled up in your pencil drawer?"

"I'm sure food would distract you from most anything, but I was thinking of something more long-lasting. You could approach this customer and say, 'I know the menus are slower, but I'm integrating a new language that will give us several benefits. For example, I can give you some of those reports you've been wanting at a reduced price.'"

"A reduced price? Why should I reduce my price just because he's complaining?"

"You don't reduce your price because he's complaining, but because you can write reports faster. Let me show you what I've been doing with reports in TAOS. The key to reports in TAOS is the FOR EACH verb, which sets up a loop to sequentially read a file. I can write a procedure of three words that will read the entire customer file:"

```
for each customer;
```

"Of course, that's not much good by itself, so I add a DISPLAY statement to display as many fields in the customer file as will fit on the screen:"

```
for each customer
     display customer;
```

When I typed, compiled and ran this procedure, Randolph was suitably impressed with the listing that came out on my screen after a few seconds. "You did in two short lines what would take me 15 long lines in BBˣ," he said.

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"You can see the customers listed in customer number order, since customer number is the primary key. Now what if we want to list in name order, how would you do that?"

"I would hope there is an alternate index on customer name and read on that KNUM," Randolph answered.

"It just so happens that this file does have an alternate index on customer name. I'm going to tell TAOS to use that index with the SORT BY clause, it will figure out which KNUM to use, and I'm going to tell it to print just two fields." I modified my procedure to look like this:

```
for each customer sort by name
     display customer.name, customer.number;
```

"Now," I asked, "what would you do if the customer file didn't have an alternate index on customer name?"

"I wouldn't try to write a report sorted by customer name then," Randolph replied promptly.

"I suppose you wouldn't, but TAOS is not so picky. I will get a report sorted by state, which I assure you is not an indexed field in this file." I changed SORT BY NAME to SORT BY STATE and displayed the state field, then I compiled and ran it again. This time the report took a little longer. During the wait I explained that TAOS was building a temporary sort file, which was what Randolph would have to do if he had accepted a job to write this report in BBX.

When the report came up on the screen, I pointed out to Randolph that the order of the customers in each state was a little unpredictable. Generally customers in the same state would be sorted by primary key, but BBX doesn't guarantee the order of duplicate records on an alternate index. To make more sense of the report, we could sort on more than one field to create a unique key. This time my procedure read:

```
for each customer sort by state
                  sort by city
                  sort by number
     display customer.number, customer.name, customer.city,customer.state;
```

Now all customers in each city were grouped together, and I was assured of getting customers in each group to report in customer number order.

"This is very nice," Randolph said, "Can you get it to sort on numeric fields?"

"Yes, I can. TAOS will build a sort file in proper numeric order. A good example is sorting by year-to-date sales:"

```
for each customer sort by ytd_sales
                  sort by number
     display customer.number, customer.name, customer.ytd_sales;
```

"Do you think you might be able to interest your speed demon customer in some easy-to-do reports?" I asked.

"Maybe so, but I've gotten distracted thinking about cucumbers and salt. Can I please look in your pencil drawer now?"