

PRESIDENT'S MESSAGE

by Larry F. Bowman
Associates Computer Services

Plans are currently underway for our fourth International Users Conference. We are currently soliciting presentations for this conference so please refer to the call for papers in this issue of the newsletter.

The procedure for handling change/enhancement requests is also in the completion stages and will be mailed under separate cover in early January. In the interim, please be preparing your requests as the basic philosophy will be approximately as follows:

1. The completed change/enhancement requests are to be submitted to the executive committee in accordance with the forthcoming procedure by January 31, 1977.

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USERS CONFERENCE REGISTRATION

It is not very far off! On April 12 and 13 we will gather for the fourth time for an International ADABAS Users Conference. We will be meeting at the Hyatt Regency New Orleans in New Orleans, Louisiana with the meetings being held Wednesday, April 13 through Friday, April 15. A preliminary agenda is included in this newsletter for your review. A copy of the Draft Agenda with some tips about weather and things to do in New Orleans will be sent to you in mid-March.

The Conference Registration Form and Hotel Registration Form have been combined this year for your convenience. A copy of this combined form is included in this newsletter for your use. A separate copy should be sent in for each attendee. The registration fee is the same as last year, \$100 with a \$25 late fee if your form is not received in Reston by

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\$500 REWARD

software ag of North America is offering a \$500 reward to the ADABAS user who "captures the audience" at the Fourth International ADABAS Users Conference in New Orleans, Louisiana. Since we don't expect anyone to kidnap the entire audience, the \$500 will be given to the ADABAS user who captivates the audience with the best formal presentation.

CALL FOR PRESENTATIONS

Although several presentations are already scheduled in the program, your contribution is greatly needed. This is your chance to share with the ADABAS user community the experience you have had with ADABAS and the lessons you have learned. Presentations may be formal or informal.

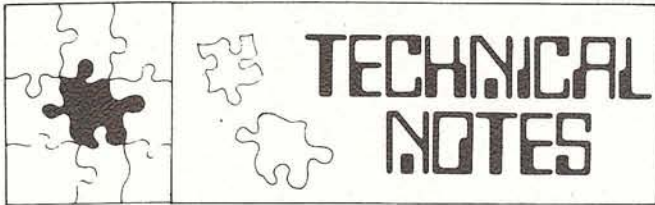
\$100 FOR TRYING

In addition to the \$500 "reward", each ADABAS user making a formal presentation will receive \$100. The formal presentation must be accompanied by a typewritten paper co-

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by Harry Ottinger
software ag of North America

ADABAS Version 3.2.1 will be released in February 1977 for OS and VS users. Included with the 3.2.1 Nucleus and Utilities in the package will be MPM55, ADAWRITER Version 1.1 and ADASCRIP+. All of these are new or significantly enhanced software. An extraordinary effort has been made to ensure the reliability of this package.

ADABAS Version 3.2.1

Version 3.2.1 was released in Europe in October after considerable alpha testing. Our Technical Staff conducted exhaustive tests in Virginia, New York and California during the early fall. Since then Version 3.2.1 has been installed at eight user sites, including one with a 7 million record data base.

All documentation has been rewritten. Two major drafts of the Reference and Utilities Manuals were written, to say nothing of the countless minor revisions. These were carefully reviewed by the entire Technical Staff. Furthermore, the final draft was used at the ADABAS beta test sites.

The installation procedures and documentation also endured careful testing. Several test installations were completed by our Technical Staff. Finally, the complete package was successfully installed by a user without assistance from software ag, although the whole procedure was observed by one of our less experienced staff members. Only minor corrections were required.

In short, we have spared no resources to ensure this version's

PRESIDENT'S MESSAGE *(continued)*

2. The executive committee will review, summarize and compile all the change/enhancement requests for review by all ADABAS Users by February 11, 1977.
3. Each user installation will review the total change/enhancement list indicating their endorsement, priority level, etc. and return the results to the executive committee by March 4, 1977.
4. The executive committee will, based on the results of item 3, formally submit our requests to software ag by March 18, 1977 so that they can give us their answers at the user conference in April.

Note: There will be a mechanism for the submission of change/enhancement requests at the conference, but software ag will probably not be in a position to respond immediately. This category will be similar to this past year; therefore, please make a special effort to be in the first cycle.

reliability.

ADASCRIP+

ADASCRIP+ is a new part of the ADABAS package which formats reports and allows data manipulation in teleprocessing and batch environments. It was developed, tested and then installed at one customer site in October. Further development and tests were carried out before installation at two other customer sites in December.

ADAWRITER Version 1.1

The enhancements in this version of ADAWRITER reflect the suggestions of the Version 1.0 users. Major new features include code table translation, retrieval of data from more than one file, support of user written subroutines, and reporting from non-ADABAS files. Five beta test installations were made at various times this fall.

MPM55

MPM55 was initially developed in the early summer and installed in seven customer sites with the MVS operating system. During the summer much of the code was revised to solve design and performance deficiencies discovered at these sites. Two of these MVS shops installed the new modules and tested them. Shortly thereafter beta tests were conducted at eight other sites selected to include all operating systems and teleprocessing environments.

FREEBIES

Freebies is your way to let other ADABAS users know what items are WANTED by your organization or AVAILABLE from your organization. Freebies can only be used to list items that are free or available for a nominal distribution charge.

software ag of North America has agreed to distribute the AVAILABLE items provided to them (*) for a handling charge of \$15.00. These items are in no way endorsed, supported, or maintained by software ag.

WANTED

What routines do you want that may have been developed by another ADABAS user?

AVAILABLE

ADAPRINT—an ADABAS Print Utility Program was developed at Mattel, Inc. and modified at the University of Hawaii. ADAPRINT will display the contents of individual fields within individual records from an ADABAS file.* (A copy of the documentation is available free from software ag of North America.)

A small Assembler program to format the SORT work area(s); provided by Greg Edwards, Canada Ministry of Supply and Services. A copy of the listing is available free from software ag of North America.

THE ADABAS OPEN COMMAND...

And Why It Should Disappear

by Pete Pratt

The Church of Jesus Christ of Latter-Day Saints

ADABAS offers two very important benefits to those who would design application systems in accordance with the emerging techniques of composite design and structured programming. One of these benefits is the functionality of the ADABAS commands. If a designer wishes to package code in modules which are functionally bound and loosely coupled, he will find that the ADABAS command structure supports this approach very well. He will also find that, if he is willing to pay the price of execution time suboptimization, he can minimize the amount of data structure knowledge he must incorporate into his modules, thus increasing the degree of data-program independence enjoyed by his application system. We feel that ADABAS is thus a very valuable tool for use in the development of transaction driven application systems, using the techniques of composite design to produce systems which are cheap to produce, easy to modify and less demanding of maintenance than systems of the past.

In this general environment of functional commands and data-program independence, the ADABAS open command is an unfortunate anomaly. It is not functional, in the sense that the other ADABAS commands are. It does nothing for the user, except to tell the ADABAS nucleus that "I'm here, and these are the files I'm going to access and update." It requires the program to know, when each run starts, which files are going to be accessed and updated in "this" run, which is a contradiction of data-program independence. If the application is transaction driven, the program can not logically "know" what files it is going to access and update until it has "seen" all the transactions by which it will be confronted in the run. It requires the existence of a run initialization module—a technique of program design which composite design has consigned to disrepute. In summary, it looks like an unfortunate vestige of obsolete technology which now impedes the use of more modern techniques in application design.

Enhancement request number 37 of the 1976 Users' Conference would have relieved the open problem somewhat, by making the open cumulative with respect to files. It requested software ag to modify the open to allow a user to issue additional opens when he discovered that he needed to access or update files which he had not previously opened. software ag chose not to implement this request, on the grounds that, under MPM, one may do a close and a new

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USERS CONFERENCE REGISTRATION *(continued)*

March 28. You will receive a written confirmation in the mail. *Put it in the mail today!*

BRING A COMPANION

As in past years, you are encouraged to bring your family. There will be a special program for them including a welcoming reception on Wednesday morning and a tour of New Orleans on Thursday. In addition, they are invited to join you for lunch on Friday, at the cocktail hours, and at the Banquet on Wednesday night. The fee for these companions is \$35 each.

INTERNALS CLASS

Again this year an ADABAS Internals Class will be conducted on Monday and Tuesday before the Conference. A copy of the 1977 Training Schedule with a reservation form is included in this newsletter. If you plan to attend, remember to put the proper date for your hotel reservation on the Conference Registration and Hotel Reservation Form.

COMPARISON OF SEARCH ALGORITHMS

Investigation into S1 and S2 Commands and Search Algorithms 1, 2, 3, and 4

by D.M. Crabtree and

M.J. Thompson

ICI Organics Division

Although we have a basic appreciation of the internal mechanism of S1 and S2 commands and the four search algorithms, we are aware that there are a few quantified guides relating to their relative efficiencies. An experimental programme was undertaken to attempt to produce useful figures, on the basis that an ounce of facts is worth a pound of theory. We were aware of the pitfalls in applying the results and figures set out below: no two programs are the same, no two files are the same and no two commands will initiate the same work. Thus, although we have drawn some conclusions, we prefer to let the figures speak for themselves, and for the reader to draw the relevance of them to his own situations. All program runs were made on a 370/158, SVS, with ADABAS release 3.2.0.

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NEW ADABAS USERS

Thanks to the efforts of software ag and other ADABAS distributors around the world ADAGROUP continues to grow. ADAGROUP welcomes the following new ADABAS users:

Electrolux

1
Luxbacken 1
105/45 Stockholm
Sweden

Electrolux is one of the largest manufacturers of vacuum cleaners and refrigerators in Europe and the second ADABAS user in Scandinavia. ADABAS will replace their DBOMP system used for planning and controlling the work flow at their various plants. Their DBMS evaluation included visits with several users in Europe and the USA, a thorough evaluation of ADABAS and IMS, and a trial of ADABAS with ADABOM. ADABAS is installed on their 370/158 with 1 meg under VS1 using Task/Master. Mats Schedin and Christer Bengtsson, 08/738-60-00, are the prime contacts.

Texas State Department of Highways and Public Transportation

2
38th Street and Jackson Avenue
Austin, Texas 78701

Department of Highways selected ADABAS after a ten month DBMS study which included detailed discussions with users of the various systems. They are currently developing a management information system (MIS) for the entire Department. The MIS will include such functions as accounting, engineering, inventory, equipment maintenance and right of way. In addition, the data base will include "soft data" (e.g., information on local ordinances and on pending state and federal legislation) for use by the field engineers and for management planning. ADABAS is installed on their two 370/155s with 2 meg each under MVT using INTERCOMM. Ralph Kirkley, (512) 475-7336, is the Director of Systems and Programming.

Teleinformatica de Mexico, S.A.

3
Reforma 30, Segundo Piso
Mexico, D.F.

TIMSA is a computing and teleprocessing service bureau in Mexico City. They selected ADABAS to offer it as a service to their customers. ADABAS is installed on their 370/145 under VS1 using CICS. TIMSA also will be the distributor for ADABAS in Mexico. Omar Alvarado, 592-33-61, is the Marketing Director and Dr. Isaac Garalnick, 566-37-99, is the Technical Director.

Public Service Commission of Canada

4
300 Laurier West
Ottawa, Ontario K1A 0M7

PCS handles personnel matters for all Canadian government employees. In 1970 PSC went on-line with a custom DBMS using inverted lists designed specifically for a professional employee skills inventory. They found their custom DBMS very hard to maintain so they conducted a three month trial of ADABAS for this application. PSC is now redesigning this application to use ADABAS and is planning to develop a custom on-line language for their users. In addition, PSC is currently in production with a clerical employee skills inventory application. ADABAS is installed on their 370/135 with 384K under DOS/VS using CICS. Dick Lee, (613) 996-1570, is the Senior Project Officer, Systems Development.

State of Nevada Employment Security Department

5
500 East Third Street
Carson City, Nevada 89701

ESD pays the unemployment compensation and helps unemployed people find jobs. ESD is the second ADABAS installation for the State of Nevada. Their statistical research files on workers, employers, and the unemployed are in production. The unemployment compensation application is being redesigned to use ADABAS. ADABAS is installed on their 370/145 with 1.5 meg under VS2 using CICS. John Pintar, (702) 885-4580, is the DBA.

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ADABAS OPEN COMMAND

(continued)

open. None of this really addresses the fundamental problem, which is that the open command just plain does not functionally fit into the ADABAS command structure. The solution to the problem is to get rid of the command altogether, thus removing the functional anomaly which it is and the design problems which it presents.

The current behavior of the nucleus makes it clear that it now checks each command to determine whether the user has opened the file(s) involved in the command. From a functional perspective its hard to see why that code couldn't be changed as follows:

With respect to the user, determine if this is his first appearance, and if it is, do whatever control block updating is required to record his existence.

With respect to files, check to see if this is a given user's first attempt to access or update a given file, and if it is, do whatever control block updating is required to record his use of the file in question.

It may be argued that this amounts to giving users carte blanche to use whatever files they wish. While this is true, it's hardly a valid argument for the retention of the command, since all it does is require a user to open whatever files he wishes to use

USERS CONFERENCE-PRELIMINARY AGENDA

TUESDAY, April 12

- 3:00- 5:00 p.m. **ADAGROUP EXECUTIVE COMMITTEE MEETING**
Executive Conference Room, 3rd floor—
Atrium Level
- 6:00- 9:00 p.m. **REGISTRATION AND WELCOMING RECEPTION**
Regency Foyer North, 3rd Floor—
Atrium Level

WEDNESDAY, April 13

- 8:00- 8:45 a.m. **SPEAKERS BREAKFAST**
Rosedown Room, 4th Floor
- 8:30- 9:00 a.m. **REGISTRATION AND CONTINENTAL BREAKFAST**
Regency Foyer North, 3rd Floor—
Atrium Level
- 9:00-10:30 a.m. **Session 1—INTRODUCTION BREAK**
- 11:00-12:30 a.m. **Session 2—FUTURE PLANS OF software ag**
LUNCH
- 2:00- 3:30 p.m. **Sessions 3A & 3B**
BREAK
- 4:00- 5:30 p.m. **Session 4—SPECIAL INTEREST GROUPS (e.g., DOS, Report Writers, Performance)**
- 6:30- 7:30 p.m. **RECEPTION**
- 7:30 p.m. **BANQUET**

THURSDAY, April 14

- 8:30- 9:00 a.m. **CONTINENTAL BREAKFAST**
- 9:00-10:30 a.m. **Session 5—REPORT WRITERS BREAK**
- 11:00-12:30 a.m. **Sessions 6A & 6B**
LUNCH
- 2:00- 3:30 p.m. **Sessions 7A & 7B**
BREAK
- 4:00- 5:30 p.m. **Session 8—CHANGE/ENHANCEMENT REQUESTS DISCUSSION**
- 6:00- 8:00 p.m. **LOUISIANA CREOLE PARTY**

FRIDAY, April 15

- 8:30- 9:00 a.m. **CONTINENTAL BREAKFAST**
- 9:00-10:30 a.m. **Sessions 9A & 9B**
BREAK
- 11:00-12:30 a.m. **Session 10—ADAGROUP BUSINESS LUNCH**
- 2:00- 4:00 p.m. **Com-plete PRESENTATION**

THE VIEW FROM 30,000 FEET

by John Maguire

The rate of ADABAS installations continues to grow all over the world. Conversions from IMS, DL-1 and TOTAL have significantly increased in the past six months. I have been visiting a number of these installations. What I hear most is "ADABAS is saving us money and time not possible with the other system".

I recently took—for the first time—a trip on the new Boeing 747-SP (SP means "Special Purpose"). In August of this year, this shortened version (but longer range) of the 747 set a new world record for non-stop air travel. The first one flew 10,250 miles non-stop from Seattle, Washington (where it is manufactured by Boeing) to Capetown, South Africa. The trip took 17 hours as the SP-747 cruises at about 1,000 km/hr. (630 mph). I would like to point out that the first 747-SP which set the new record was "stripped" (e.g., only 55 people aboard using plastic utensils instead of stainless steel or silverware). The new 747-SP is being purchased by many airlines. My first flight on this new plane was on South African Airways from Frankfurt, Germany to

EAST CENTRAL USERS MEET

by Larry F. Bowman

On December 6, 1976, the East Central Region held an Adabas Users' Meeting. While attendance wasn't as good as expected, those in attendance received considerable information. The basic topics discussed are listed below:

1. Design considerations.
2. Performance optimization.
 - a. Deletes.
 - b. Restarts.
 - c. Loading and Allocations.
3. Data Base Dictionary/Directories Presentations.
4. software ag Support—Technical and Administrative.
5. software ag's Response to Change/Enhancement Requests.
6. Training, Standards and Procedures.

There is nothing sacred about these topics, but they may be of value to generate ideas for those regions that haven't met together.

As a result of this conference, I am including a paper on a delete utility written by Dan Skwarcan (with his permission) from Associates Computer Services. His presentation is on a specially written utility to delete a portion or the entire data base.

NEW ADABAS USERS (continued)

Henry Wiggin and Company Ltd.
Holmer Road
Hereford
England

Henry Wiggin Ltd., is an affiliate of International Nickel Company and is the third INCO installation of ADABAS. ADABAS is installed on their 370/135 with 320K under VS1. Mike Rhodes, 0432-6461, is the DBA.

Allied Breweries
Burton-on-Trent
Staffordshire, DE 14 1B2
England

ADABAS is installed on their two 370/155s with 768K under MFT/HASP using CICS. Peter Curnow, 0283-45320, is the DBA.

Securities and Exchange Commission
500 North Capitol Street
Washington, D.C. 20549

They are developing a data base containing a profile of each organization registered with the SEC and all of the filing made by these organizations. The latter data will include an index of the location of the microform copy of the full text of the filing. ADABAS is installed on their 360/40 with 442k under DOS using SHADOW II. Dick Hunt, (202) 755-1820, is the Chief of the Planning, Development and Technology Branch.

New York City Police Department
Management Information Systems Division
1 Police Plaza
New York, New York 10038

NYC Police Department selected ADABAS because its functions are comprehensive and it is easy to get applications in production. Their ADABAS applications will include a personnel system and an on-line criminal justice information system. ADABAS is installed on their 370/158 with 1.5 meg under VS1 using CICS. Sgt. Jack Livingston, (212) 374-5034, is the Supervisor of Systems Programming.

The INSCO Systems Corporation
3501 Route 66
Neptune, New Jersey 07753

ADABAS is installed on their 370/158 under VM/CMS, another 370/158 under SVS, and 360/67 under MVT each with 2 meg. One of the 158s will be replaced in April with a 370/168. Stuart Monk, (201) 922-1100, is the Senior Staff Consultant.

THE VIEW FROM 30,000 FEET (continued)

Johannesburg, South Africa, in September, 1976. This is normally a 8,000 mile, 13 hour trip, but we encountered very heavy headwinds off the western coast of Africa and had to make an emergency landing at Windhok, South West Africa to take on enough fuel to make it on to Johannesburg.

In Johannesburg, the Computer Society of South Africa was having a three-day conference on "Data Base '76". Mr. J.J. Van Rensburg, the society's president, had invited Peter Webster (representing duPont) and me of software ag to make presentations. Leo Cohen, of Performance Development Corporation was scheduled to make two presentations, but unfortunately he pulled his back "out" at the last minute, so Pete gave one of his presentations and I gave the other. There were 400 attendees at the conference.

Graeme Wallace of SPL and I visited many ADABAS users and prospects in South Africa—there are a lot of IBM computers there.

The famous Blue Train of South African Railways is really unique. It is a super luxurious train that travels the 1,000 miles between Capetown in the South and Pretoria, the Capital in the North. Advance reservations are required. Lu Snyders of the South African Railways arranged for my wife, Ann, and I to enjoy a ride on that superb train—we are indebted to him. The Railways is an ADABAS User and ADABAS is being used there under the direction of Neville Heger, the Superintendent of Data Processing.

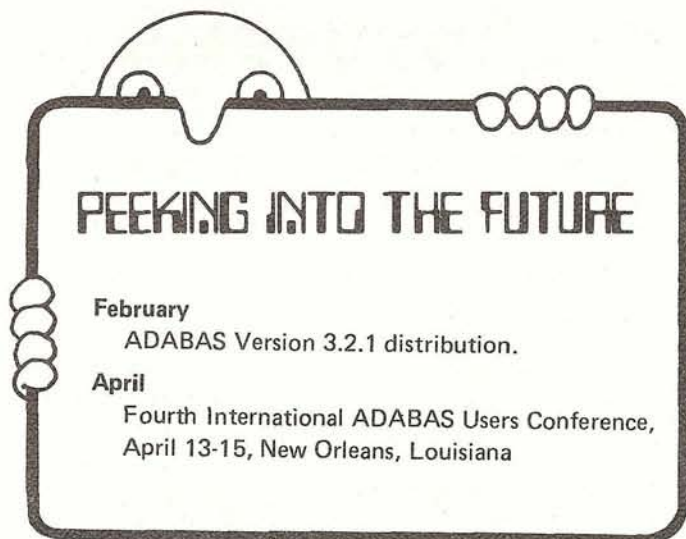
Courtesy of the Computer Society of South Africa, we spent a weekend at a private game reserve near the famous Kruger Park. This "camera safari" was a memorable experience.

Before returning to the United States, we spent some time in Brazil where the ADABAS user population has grown from one to eight in the past year. This rapid growth has required some assistance for CONSIST (the local ADABAS distributor) out of Reston (Jim Addis and Jim Forestell), but things seem to be going well there now.

We have had an increase in the number of ADABAS "seminars" all over the United States and I want to take this opportunity to offer my personal thanks to you ADABAS users who have been most helpful and cooperative in assisting us in spreading the ADABAS "gospel" to the rest of the computer world.

software ag had a booth at INFO '76 in Chicago which was attended by about 12,000 people. Your ADAGROUP president, Larry Bowman was on the program. Naturally, "Data Base" was a hot topic.

By the time you read this, I'll likely be back from Japan where Kazuro Fujimoto and his capable staff are serving a growing base of ADABAS users. There is also other interesting ADABAS related activity taking place in Japan. I hope to be able to report on it very soon.



DBUNLOAD

by Dan Skwarcan
Associates Computer Services

DBUNLOAD is a general purpose utility program to unload a piece of or an entire data base record from a piece of or an entire data base file in raw data form. DBUNLOAD is driven by control cards and produces a standard sequential output file. The control cards which drive DBUNLOAD can be classified to three types: Command, Format and Value.

The command card identifies the command to be used, the file to access, the maximum records to unload, the additions or scan field, the starting and ending ISN, and the value option. The maximum records field will limit the number of records unloaded. The starting ISN allows the user to start the file scan at a specified ISN. The starting and ending ISN option can be used with any of the allowable commands considering the rules pertaining to the ISN field with respect to each allowable command. Combining the starting-ending ISN option with the maximum records option allows the user the flexibility to:

- 1) start with an ISN and end at another ISN and within these ISN limits unload X amount of records.
- 2) start with an ISN and from the starting ISN until the end of the file unload X amount of records.
- 3) start at the beginning of the file and unload X amount of records with the ending ISN being the last ISN read.
- 4) start at the beginning of the file and unload X amount of records.
- 5) start at an ISN and unload all records until the end of the file.
- 6) start at the beginning of the file and unload all records up to an ISN.
- 7) unload the entire file.

ADAMINT IS GOING UP

... in usage and in price! The list of ADAMINT users is growing fast. Eighteen (18) ADABAS users are now using ADAMINT and several more have it on trial.

Effective January 1, 1977 the price of ADAMINT went up for new ADABAS users. The previous price was \$6,000 for purchase (no lease was available). The new price is a 10% surcharge on the price paid for ADABAS for purchase or for lease. Clients who obtained ADABAS prior to January 1, 1977 will have until March 31, 1977 to buy ADAMINT at the old price. Contact **software ag** to begin a free 30-day trial. (All of the purchase prices given here are in addition to the annual ADAMINT maintenance fee.)

The following organizations are now using ADAMINT:

1. Shell Oil Company—Houston, Texas
2. Shell Canada Limited—Toronto, Ontario
3. E.I. duPont Company, Engineering Department—Newark, Delaware
4. Department of Supply and Services—Ottawa, Ontario
5. The LDS Church—Salt Lake City, Utah
6. Blue Cross of Oregon—Portland, Oregon
7. University of Hawaii—Honolulu, Hawaii
8. New York City Police Department—New York, New York
9. Securities and Exchange Commission—Washington, D.C.
10. Simon Fraser University—Vancouver, British Columbia
11. Public Service Commission—Ottawa, Ontario
12. E.I. duPont Company, Savannah River Labs—Aiken, South Carolina
13. State of Washington Data Processing Center—Olympia Washington
14. Jefferson County School System—Golden, Colorado
15. Seattle Public School District—Seattle, Washington
16. General Motors Proving Ground—Millford, Michigan
17. Commercial Union Assurance—Boston, Massachusetts
18. Colorado Department of Administration—Denver, Colorado

ADAMINT Technical Note

Version 1.2 of ADAMINT is available now and will be officially released with formal documentation in the near future. This version of ADAMINT can generate code for use under CICS or INTERCOMM as well as for use in batch.

If the ending ISN and the maximum number of records is coded, whichever constraint is fulfilled first will cause normal end. The additions or scan field names and ADABAS field use the two position ADABAS field name. It need not be a descriptor if you are using an L1 or L2 command. If you are using the L3 command with the value option, the read will start at the specified value, as denoted by the value card after the specified starting ISN, and unload all records until response code 3 is encountered or maximum records is reached or the ending ISN is encountered.

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DBUNLOAD (continued)

The Format card or cards defines the format buffer to be used in reading the file. The maximum format buffer length is 256 bytes and the format must be terminated by a period. The format card is denoted by a "F" in column 1 and a blank in column 2 followed by a standard ADABAS format up to and including column 80. Continuing a Format card is accomplished by coding an "F" in column one a blank in column two and the continued format from column 3 through 80.

The Value card or cards defines the value to be searched for in an L1 or L2 command. For the L3 command the Value card denotes the value to be used in conjunction with the value option to prime the read logical. The maximum value size is 256 bytes. The value card is denoted by a "V" in column one, a blank in column two followed by the value to be searched for. The value is continued in a similar manner to the format card. If the scan field option is used the program issues an LF command to the file, and finds the field's de-

fault length and format. If the field is packed, unpacked or binary on the data base the value card is tested to verify numeric contents and then converted to the proper format for comparison to records read from the data base.

The record buffer length is based on the DCB LRECL field of the DCB parameter. The length of the scan field is then added to the DCB LRECL and a GETMAIN is issued for the record buffer:

Possible uses of DBUNLOAD:

- 1) restructuring data bases
- 2) strip a type of data from a production file to be used to create a small test file for program testing
- 3) testing new releases or SM's
- 4) data base integrity testing
- 5) one time requests for a raw data copy of a file or a piece of a file

COMMAND CARD

FIELD NAME	LENGTH	CARD COLUMN	FORMAT	REQ. OPT.	POSS. VALUES	COMMENT
COMMAND CODE	2	1	ALPHA/NUM	REQ.	L1, L2, L3	
FILE NUMBER	3	4	NUMERIC	REQ.	ANY NUMERIC	
MAX. REC. TO UNLOAD	7	8	NUMERIC	OPT.	ANY NUMERIC	SPACES IF NOT NEEDED
ADDITIONS/KEY FIELD	2	16	ALPHA/NUM	OPT.	ANY FIELD NAME	MUST BE DE FOR L3
STARTING ISN	7	19	NUMERIC	OPT.	ANY NUMERIC	SPACES IF NOT NEEDED
ENDING ISN	7	27	NUMERIC	OPT.	ANY NUMERIC	SPACES IF NOT NEEDED
VALUE OPTION FLAG	1	35	ALPHA	OPT.	V	ONLY L3

JCL FOR DBUNLOAD

```
// EXEC PGM=DBUNLOAD
//STEPLIB DD DSN=DBM.MODUCL,DISP=SHR
//SYSUDUMP DD SYSOUT=A
//SYSIN DD *
L20080001000BG01000000500000
F0AA-AE,AF-AJ.
V091275
//SYSPRINT DD SYSOUT=A
//SYSOUT DD DSN=UNLOADED.FILE008,DISP=(,KEEP),
// DCB=(LRECL=98,BLKSIZE=9800),UNIT=TAPE
```


\$500 REWARD *(continued)*

vering the same material as the presentation. The paper need not be a transcript of the presentation but rather a written description of the points to be made together with any back-up material available. This paper must be sent to Tom Berrisford at **software ag** in Reston by March 31.

If you are not able to make a formal presentation, you may make an informal presentation. An informal presentation does not include a paper and is not eligible for the \$100 or the \$500. A one page outline and copies of the viewgraph transparency material must be sent to Tom Berrisford at **software ag** in Reston by March 31. If you need help in typing or preparing the transparencies, **software ag** has agreed to help you.

PROCEEDINGS AT CONFERENCE

The presentation papers, outlines, and transparencies are being requested in advance so that we can distribute the Proceedings at the Conference instead of several months later.

THE ADABAS OPEN COMMAND *(continued)*

before he uses them. If file protection is a requirement, one may use the security package and/or ADAMINT to control file useage. It also means that a run could proceed for some time and then abort due to the mid run discovery that a file which it requires is not available. With the open command in its current implementation that discovery will be made before the run can accomplish any processing. If this is a problem, it can be addressed by proper design, without forcing everybody to live with the problems which the open command now presents.

In conclusion, the disappearance of the open command will make the ADABAS command structure functionally whole and consistent and remove a real impediment to the development of application systems which are functionally cohesive and loosely coupled, and therefore easy to modify and maintain. The author has submitted an enhancement request to this effect and hopes that this article will persuade members of the user community to support that request and **software ag** to quickly implement it.

We need your help to make this conference as successful as those in the past. If you are interested in making a formal or informal presentation at the Users Conference, please contact Jim Buckner at Commercial Union Assurance in Boston, (617) 725-7126 or Larry Bowman, President of ADA-GROUP at Associates or Tom Berrisford at **software ag**.

Various users have expressed an interest in hearing presentations on a number of subjects, including:

- Data Base Design
- Performance Optimization
- Training
- Standards and Procedures
- Data Base Administration Experiences
- Data Dictionary
- Security and Data Protection
- Application Experiences

software ag has agreed to make presentations on a number of subjects, to include:

- ADASCRIP+
- MPM55
- ADABOMP

COMPARISON OF SEARCH ALGORITHMS *(continued)*

S1—Algorithms 1, 3, 4, and alg. 1 with data read

File M holds 8000 records, each record containing elementary DE fields X, Y and Z. There are 8000 (unique) values for X, 10 values for Y and 150 values for Z. A temporary file of random order records each containing a valid X/Y/Z code combination was input in the programs below to find the ISNs of the corresponding X/Y/Z records in File M.

- Prog. 1. Algorithm 4 search of inputs X/Y/Z equal to File M records X/Y/Z
- Prog. 2. Algorithm 3 search of inputs X/Y equal to File M records X/Y.
- Prog. 3. Algorithm 1 search of inputs X equal to File M records X.
- Prog. 4. Algorithm 1 search of inputs X equal to File M records X, and each correspondence followed by L1 read to check by program that input Y/Z equalled Y/Z in the File M record found.

Note 1. Initial runs of these programs were such that the input file was in the same physical order as the File M records. CPU time was 5% less, and the number of EXCPs 15% fewer.

Note 2. In practice three input files were run against the programs, the files containing 250 records, 500 records and 1000 records. The results below for each program give the times and EXCPs for each volume of input file.

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COMPARISON OF SEARCH ALGORITHMS *(continued)*

Prog. No.	No. of Input Records	Search	Command/ Alg.	CPU time (secs)	EXCPs
1	250	X/Y/Z	S1/4	30.67	2926
	500			59.26	4675
	1000			113.82	9087
2	250	X/Y	S1/3	5.85	488
	500			9.54	427
	1000			18.11	650
3	250	X	S1/1	3.28	355
	500			5.19	315
	1000			9.05	419
4	250	X(+ Y/Z)	S1/1 (L1)	4.70	756
	500			7.09	821
	1000			13.31	1485

Table 1

The following tentative conclusions are offered (1) In the circumstances of the Alg. 4 search of three DEs and three values the performance of the algorithm is disappointing and out of proportion to the other algorithms regarding the further refinements of ISNs achieved. The fact that the times recorded for 250, 500 and 1000 records are almost linear suggests that the time taken is not just 'initial set-up time' (rolling out ADAEMO, initially generating bit strings, etc.). The results suggest Alg. 4 should be avoided in programs under normal circumstances. (2) in the circumstances shown Alg. 3 appears efficient, in the sense that the times taken are in proportion to the extra refinement made compared to Alg. 1. (3) The substitution of Alg. 4 for Alg. 1 (or Alg. 3) plus data read seems an obvious policy, but the figures indicate that a substitution of Alg. 3 for Alg. 1 plus data read is a more questionable device. See however section below, on Application problem comparing alg. 3 to alg. 1 with data reads.

S1—Algorithm 3 with different length ratios of the two lists to be sequentially matched

It is well-known that in a two DE, two value search, if one value has so many qualifying ISNs that a large number of disk to core transfers of blocks of ISNs must be made, the search will be lengthy at least because of this activity. To attempt to test whether any other significant inefficiency also exists in comparing lists of widely different lengths, programs 1 to 6 below were run. In programs 1, 2 and 3 an input file of values, 'A', was compared to known values of DE A in File M (8000 records) and known corresponding value C (hard coded in the programs). In programs 4, 5 and 6 similar searches were made with value B and C. Values A are unique in the file, values B are not. The following results were obtained.

Prog. No.	No. of A values (Avg. no. of ISNs)	No. of C values	Command/ Alg.	CPU time (secs)	EXCPs
1	40 (1)	109	S1/3	1.61	194
2	40 (1)	1130	S1/3	1.81	203
3	40 (1)	2296	S1/3	2.05	213
	No. of B values (Avg. no. of ISNs)				
4	3 (35)	109	S1/3	1.72	234
5	3 (215)	1130	S1/3	1.79	238
6	3 (453)	2296	S1/3	1.89	245

Table 2

It is concluded that in this matter algorithm 3 is efficient.

S1/S2

- Multi-range S1 search in File P (8000 records) on elementary field descriptor A, of form 'value A, or value A or value A to value A, or value A to value A,' involving four ranges of A. The first result involved alg.2, and the second alg. 4 because over 1000 ISNs were involved. (The difference of 0.07 secs was consistent throughout later searches of the same range followed by sort—i.e., S2 commands).

Command/Alg.	No. of ISNs	CPU Time (secs)	Time/ISN (MS)
S1/2	999	0.23	0.230
S1/4	1002	0.30	0.299

- Single-range S1 search in File Q (8000 records) on *periodic group* descriptor E, of form 'value E to value E'.

Command/Alg.	No of ISNs	CPU Time (secs)	Time/ISN (MS)
S1/2	311	0.07	0.225
S1/4	2283	0.35	0.153

- Single-range S1 search in File Q on elementary field descriptor D, of form 'value D to value D'.

Command/Alg.	No of ISNs	CPU Time (secs)	Time/ISN (MS)
S1/2	214	0.06	0.280
S1/2	381	0.10	0.262
S1/4	1364	0.36	0.264
S1/4	3618	0.75	0.207

- S2 commands corresponding to the second search shown in 1 above. The times shown exclude the time required to get the list of qualifying ISNs. That is, the S1 time is eliminated, showing the time to read the NI serially, obtain values for the attached sort key(s), and sort on key(s).

Command/S1 DE	No. of ISNs	Sort Order	CPU Time (secs)
S2/A	1002	A	0.89
S2/A	1002	A/B	1.56
S2/A	1002	A/B/C	1.82

COMPARISON OF SEARCH ALGORITHMS *(continued)*

The S1 ISN list was almost in A order. There were 1002 values for A, 150 maximum possible values for B and 10 maximum possible values for C.

5. S2 commands corresponding to searches in 2 above, again with S1 times excluded. The S1 ISN list was almost in D order.

Command/ S1 DE	No. of ISNs	Sort Order	CPU Time (secs)
S2/E	311	D	1.01
S2/E	2283	D	1.76

6. S2 commands corresponding to searches in 3 above, excluding S1 times. The sort order E would have had no relation to the ISN order, being completely scattered. Almost the whole of the NI of E would have required to be read before all values were attached to all fields of the key.

Command/ S1 DE	No. of ISNs	Sort Order	CPU Time (secs)
S2/D	214	E	2.38
S2/D	381	E	3.41
S2/D	1364	E	9.22
S2/D	3618	E	21.07

7. **Conclusions.** The following tentative conclusions are offered. (1) The S1 command for one descriptor and more than one value appears efficient in use for "value ranges", whether in algorithm 2 or 4. (2) The S2 command is relatively efficient if every sort key involves a normal index of small size or it can be guaranteed that the search for the ISNs within the normal index will be satisfied within a small value range of the index. (3) The S2 command will be disproportionate in time to results achieved if condition (2) does not hold—i.e., if lengthy searches of normal indexes are involved, even though only a few ISNs may be involved in the sort.

Application problem comparing alg. 3, to alg. 1 with data reads

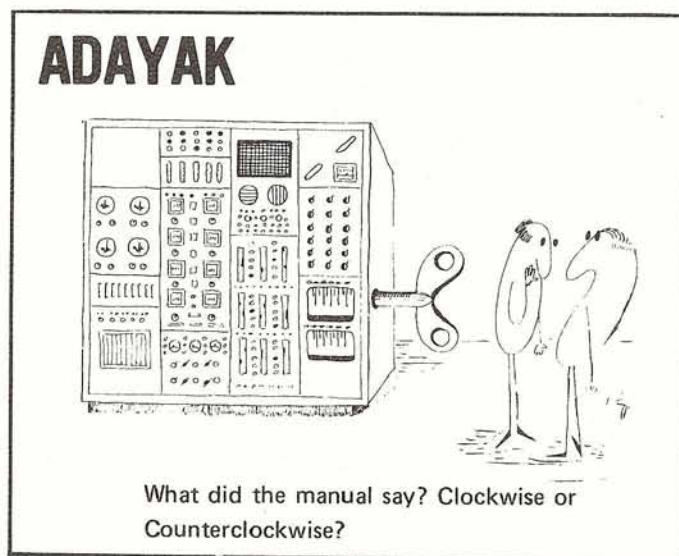
A temporary file was obtained of 250 randomly found records giving product code p and works of manufacture w. The temporary file was used as input to programs involving File Q (8000 records). File Q is essentially a 'bill of materials' file, each record having a PE group giving the chemicals p¹ involved in a product's manufacture, and the work of manufacture w¹ of the particular product made. It was required to know of the input file which input products p were involved in the chemicals of manufacture in File Q, and which happened also to produce from the manufacture a product within the same works, w¹, as the works of manufacture, w, of the chemical taking part in the reaction. (Such products are known as 'own works manufacture products'). The program was written two ways. Prog. 1. By comparing input product p to PE group descriptor p¹, and input works w to elementary field descriptor w¹. Prog. 2. By comparing input product p to PE group descriptor p¹, and for each match found issuing an L1 command to test by program input works with all ISNs found in the match. A third program, 3, was written to omit the L1 commands in program 2 to determine the time just for the algorithm 1 S1 calls in prog. 2.

Prog.	Command/alg.	CPU time (secs)	EXCPs
1	S1/3	13.73	1663
2	S1/1 then n (L1s)*	6.13	863
3	S1/1	4.53	341

*n lies between 1 and 16, average about 6.

Table 3

105 records of the 250 input were found to be 'own works manufacture products'.



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