Software AG International Users' Group Newsletter

Users' Group News

Eighth International Software AG Users' Conference
June 9-13, 1980

Houston
80

Users of Software AG products are invited to attend the Eighth International Software AG Users' Conference, held at the Galleria Plaza in Houston, June 9-13, 1980.

As in the past, the Conference's technical agenda will include user presentations, change/enhancement sessions, workshops and a discussion of Software AG futures. Users' Group Business sessions have also been scheduled.

Conferees will choose to attend user presentations in three areas: ADABAS (and its associated products), COM-PLETE, and the integrated ADABAS/COM-PLETE environment. There will be concurrent presentations in these topical areas. A "Best Speaker" in each of these categories will be chosen by the Users' Group, and awarded $1000.

In response to suggestions from last year's attendees, workshop sessions will be scheduled apart from user presentations. Among the ADABAS workshops are Restart/ Recovery, Data Dictionary, DBA Tools, Education/Documentation, Performance. Concurrent COM-PLETE workshops are also scheduled, corresponding to that product's Special Interest Groups. Additional workshops addressing other areas of user interest are also planned.

There will be separate Change/ Enhancement sessions for ADABAS and COM-PLETE. These will be organized as in previous Conferences,

providing a forum for discussion between users and Software AG.

Users' Group Business Sessions are scheduled and will include discussions and voting on the merger of the ADABAS and COM-PLETE Users' Groups and the proposed Constitution. Elections for some regional representatives and product representatives will be conducted, too.

While the technical agenda is full, participants and their guests will have good opportunity for relaxation and fun. An outline of social plans can be found in this Newsletter.

Registration forms for the Conference have been included in this Newsletter.

The Lone Star State Welcomes Software AG Users

Monday, June 9, 1980, is the date to circle on your calendar. You and other users from all over the world will gather in Houston, Texas for the Eighth International Software AG Users' Conference...and it promises to be the most exciting one yet!

Headquarters is the Galleria Plaza Hotel and all meeting rooms are conveniently located on the third level. Software AG has also reserved a block of sleeping rooms in the Galleria Plaza's sister hotel, the Houston Oaks. Both are connected by the renowned Galleria Mall and the entire complex is known as Houston's "City Under Glass". The illustration in the December issue of the Newsletter shows this perfectly.

Check in time in both hotels is 3:00 PM. If you plan to arrive early, every effort will be made to have your room available. If there is a slight wait, Software AG will be ready to welcome you in the registration area—hereafter known as "Mission Control". You can park your bags, register for the Conference, have a cup of coffee and say hello.

Things are off to an exciting start on Monday evening at 7:30. It's the Welcome Reception and a perfect opportunity to greet old friends and meet new ones. Tuesday the conference officially begins and while conferees are busy absorbing and trading information, companions are invited to a champagne brunch and a motor tour of Houston. Tuesday evening, a specially produced Software AG Rodeo will take place on a private ranch near Houston and the Texas dinner will include the finest barbecued beef and jalapeno cornbread west of the Mississippi. Wednesday includes technical presentations for the conferees and the companions will enjoy a special theater production. Wednesday night is open and will give everyone the opportunity to shop in the most unique mall in the country with 200 stores available including Neiman-Marcus, Lord & Taylor, Tiffany and Gucci, among others and twenty restaurants to please your palate.

Thursday features workshops for the conferees, a tour of the estate of Miss Ima Hogg, lunch at the Warwick Hotel, and a docent tour of the Museum of Fine Arts for the companions. Thursday evening, the formal banquet. Friday, workshops all morning and the Conference comes to a close at noon.

This is just a brief sketch of what to expect and there are lots of surprises waiting in the wings.

In this Newsletter you will find two registration forms, one for the Conference, which is to be mailed to Software AG, and one for your hotel reservations, which is to be mailed directly to the Galleria Plaza. Please note carefully the cut off times and late fees. In fact, why not start making plans now. Any questions, call Cathy Vivona, Software AG Users' Group Liaison.

See you in the Lone Star State on June 9, 1980!
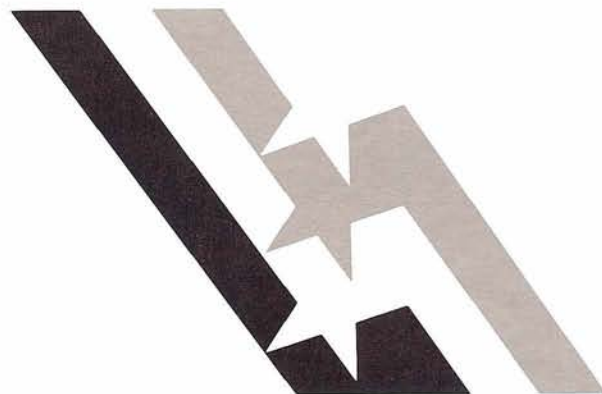
Houston 80

Eighth International Software AG Users' Conference June 9-13, 1980

President's Message

Michael Berman
INCO Limited

Now that the holiday season is behind us, it is time to start planning for the Eighth International Software AG Users' Conference which will be held in Houston, Texas. Before the conference most regions will be having a regional meeting. At this meeting a Regional Representative should be selected to serve your region for the coming year. If you are planning on serving as a Regional Representative you should be aware that you will be committing your time to serve on various projects. Because of this, I would suggest that you get a commitment from your organization prior to these elections. Both you and your organization will benefit from this kind of active involvement in the Users' Group. In addition to having a voice in the running of the Users' Group, you will work actively with Software AG to give them direction and to help them make their products the best in the marketplace. If you are interested in becoming a Product Representative or a Special Interest Group Chairperson, you will be expected to spend time coordinating the related activities. Whatever position might be suitable for you, please keep in mind that your primary responsibility is to serve the User Community. Should you have any questions regarding the responsibilities of any Users' Group Office, please do not hesitate to contact me. I am sure you will find that becoming actively involved in the Users' Group is a rewarding and personally enriching experience.

I would like to welcome Cathy Vivona as the Software AG Users' Group Liaison. After having a few meetings with her I am sure that she will put new life in the Users' Group and Software AG.

The call for papers went out a few months ago and the deadline for submission is April 1, 1980. I urge all users who are planning on giving a presentation to have these papers submitted following the guidelines by the required date. Papers received after the deadline will not be accepted.

You will be receiving the change/enhancement voting package very soon and I hope that all users fill out the ballot and return it by the required date. This will give us enough time to tabulate the votes and present them to Software AG for their response.

I hope to see you in Houston.

Executive Committee Vacancies Filled

Three new regional representatives have been elected by local users' groups.

At their first meeting, the newly created Southeast Region chose Steve Froneberger to act as their representative. Steve is from Duke Power Company.

The UK Users' Group has selected Peter Spooner of ICI (Organics) to fill the vacancy caused by Roger Martin's recent relocation. Still in the ADABAS Community, Roger will keep his office as SAGGROUP Secretary.

David Berg, of Hughes Aircraft, has been elected Western Region Regional Representative. David will coordinate regional details of the two very active "sub-regions" making up the Western Region. Bill Belisle, of the Department of Youth Authority, has agreed to be the focal point of the northern sub-region matters; Walt Hopkins of Nissan Motors will serve the southern sub-region in this capacity.

Jennifer Lee has agreed to fill the ADABAS Contributing Editor position. Ms. Lee is active in the Western Region and represents Information Handling Services.

Bill Belisle and David Berg of the Western Region
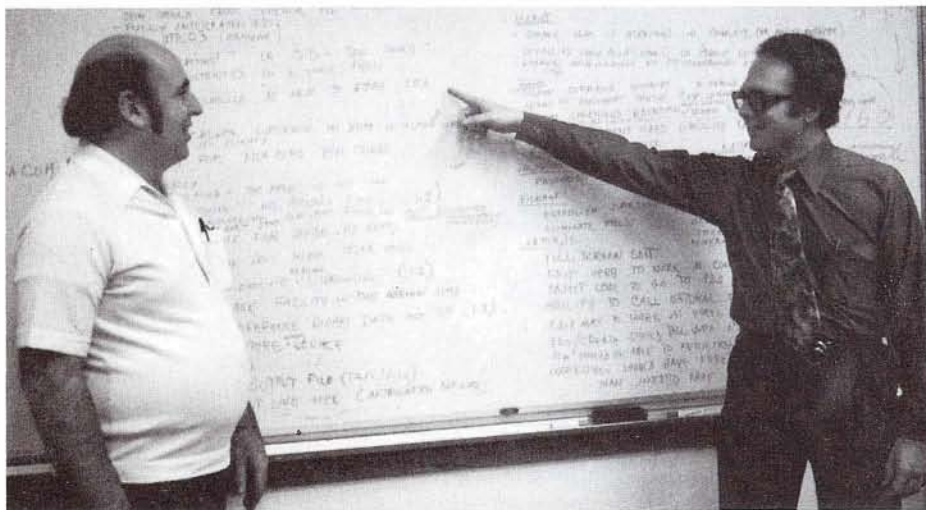
Regional Reports

Northwest Region

by Douglas Hart
Administrator for the Courts

Fifteen users from nine installations attended the Northwest region Software AG Users Group meeting held at the Governor House Hotel in Olympia, Washington on December 7, 1979. Some interesting presentations were given by the users in attendance.

Doug Hart started the meeting by discussing a current project: ADABAS Transaction Log Analysis. A program was written by a co-worker, Hans Stoker, that provides a report summarizing CPU and I/O counts for each command executed against each file. Also a command queue depth profile for both TP and batch transactions is printed. Points of interest regarding the daily report were presented to the group. The most notable statistic shown in the report is the definite correlation between file size (number of records) and the increasing CPU time used to add a record as a file grows.

Lorna Earl of Alberta Gas Trunk Lines had a very interesting presentation on ADABAS prototyping tools. She discussed how by using TSO CLISTS to provide menus on different data base functions, users could add a data base file definition to the dictionary, run ADASCRIPT, load a file into ADABAS, run data dictionary reports, etc., as well as other data base related functions.

Mike Phillips of the Washington State Liquor Control board presented the use of the Warnier-Orr diagrams as a versatile system development design tool. They are using it extensively to define not only the logical processes in an application, but also the logical design of the data base.

Steve Carter of Software AG gave an update on product release dates and other technical details on the latest release SM tape. Minutes from the executive meeting on October 29 & 30 were also read.

The next Northwest regional meeting will be at the Vance Airport Inn at Sea-Tak on March 14, 1980.

Southeast Region

by Steve Froneberger
Duke Power Company

The first Users' Group meeting of the newly formed Southeast Region was held on January 22 in Atlanta at Dunfey Atlanta Hotel. Eight of the nine installations in the Southeast were represented with a total of seventeen persons present. Introductions and brief comments concerning each installation's activities with Software AG products was the first item on the agenda.

The following is a brief summary of the day's activities:

- Cathy Vivona described the organization of other regional user groups and outlined the duties of the regional representative. Cathy, along with Hank Stennes, entertained questions and comments regarding problems users have encountered with documentation and solutions to problems.

- Barbara Burns discussed the experience of R.J. Reynolds in their use of NATURAL. She covered the problems they had encountered but felt that the advantages offered by NATURAL outweighed these problems. The major facilities of NATURAL were reviewed.

- Pete Smith of the Center for Disease Control presented the objectives of their in-house training program. The three target groups identified by CDC are executives, users, and pro-

Steve Froneberger, Southeast Regional Representative

grammers. Different approaches are used for each group. Pete also mentioned that an interface between SAS and ADABAS is being investigated.

- Hank Stennes presented the major new features available in the next release of the Data Dictionary and discussed the future direction of the Data Dictionary. Online update capability through COM-PLETE and CICS should be available soon. Future Software AG goals for the Data Dictionary involving increased integration of ADABAS and the Data Dictionary were discussed.

- Ken Kleinbub led a discussion on ADABAS security. E.I. Dupont has a need for strict security and has made modifications to ADABAS access modules to increase security measures. The goals of the security efforts of E.I. Dupont are to minimize the risk of loss and integrity due to unauthorized access, modification or disruption of data. The modifications made by E.I. Dupont are aiding in reaching their goals.

- Ralph Jenks explained how Dade County Public Schools has modified the "SMARTSTART" procedure developed by Doug Hart to fit their needs. Documentation on how the system works was presented to attendees. Ralph also presented output from a performance monitoring system developed at Dade County Public Schools. The output of this system comes from a parameter driven program which

processes the ADABAS log file.

- An open problem session was held at the end of the presentations.
- The next meeting is tentatively scheduled for April 16 at Duke Power Company in Charlotte, North Carolina. One topic of discussion will be Version 4.1.

United Kingdom Region

by Peter Spooner
ICI Organics Division

The first meeting of 1980 was held in Sheffield on January 17th with the Midland Bank as hosts. The meeting was attended by 33 users from 19 installations. Jeff Thomas, of Talbot UK, took the Chair due to the departure of the UK Group Chairman, Roger Martin of Allied Breweries, to a post in Saudi Arabia. Until a new Chairman is found the Chair will rotate round the members of the Executive Committee.

The Chairman reported on the Executive Committee meeting with ADABAS Software Ltd. at which agreement was reached on general User Group Liaison, an Early Warning System for Ver. 4.1 and procedures for Training Courses.

The following people agreed to act as Chairman for the S.I.G.'s.

Data Dictionary	– Neal Hardy, Talbot UK
Language Interfaces	– Gerry Gough, Allied Breweries
Database Administration	– Trevor Thruston, Midland Bank
Performance	– Barry Fry, London & Manchester Assurance

A presentation on ADAMINT was given by Darrell West of BUPA and Paul Daws of Commercial Union.

A session was held where users could present problems to the entire Group. The discussion proved very useful as the other users gave their ideas on possible solutions and alternatives.

The next meeting of the UK Group will be held in London in mid-May.

Australia

by John Lord
Tooth and Company

The Australian Software AG Users' Group was formed at a meeting of Australian ADABAS users in Sydney on 6th December 1979. Sixteen people attended representing four user sites, one trial user, one supplier and SPL.

The meeting started with a welcome to delegates. Geoff Holloway (SPL) welcomed the formation of the user group on behalf of SPL and Software AG. He stressed the communication benefit to be had from such a group and also the longer term pressure group benefits for the product to go in the direction that the users' require. Geoff also read a telex from Software AG stating that 4.1 was still on schedule. Colin Pratt (Tooth) welcomed the delegates on behalf of Tooth and Company and said that the formation of the user group represented a "coming of age" of ADABAS in Australia which had been achieved in a fairly short time and indicative of the quality of the product.

A representative from each company then introduced himself and any colleagues and then presented a short user profile.

Using a videotape taken at the San Diego Conference, Bob Warburton (SPL) gave a presentation on ADABAS-M which was most interesting particularly to those users contemplating future network requirements. Unfortunately neither Frank Zaknic (SPL) nor Tooth's computer were available for the NATURAL presentation so Bob filled in with the NATURAL videotape from the San Diego Conference.

Next followed a presentation on the DB/DC environment at Tooth explaining how ADABAS/CICS/Central software has been tied together with home-grown code to produce an environment at least equal (we're modest) to IMS DB/DC.

After a smorgasbord lunch, the main business of the day was addressed. It was decided to form an interim committee to establish a constitution for ratification. This constitution would embody the objectives and organization of the users' group. We also decided to establish a budget and method of funding for ratification and, of course, to plan the next meeting. This will be held in Canberra at the Australian Bureau of Statistics. The suggested date is 7th March.

The interim committee consists of Peter Wright (ACI), Peter Kazacos (OCAL), David Bird (Australian National Library), and the writer as chairman.

On 7th December Frank Zaknic (SPL) gave a course on ADABAS 4.1 facilities and conversion. Interstate user group delegates were able to stay over and hence there was a good roll up and plenty of discussion. With both Frank and the machine available, there was an added bonus of a live NATURAL demonstration.

Finally a few days ago some users had the pleasure of a flying visit from Mr. Macho himself–dynamic Dave Del Rio and benefited from his expertise; but alas once again the visit was all too short (not even enough time to wear out a keyboard).

Western Region

by David Berg
Hughes Aircraft Company

The Western Region has a new profile since we last reported to you. Because there is a rapidly increasing number of users in both the northern

and southern halves of the region, two sub-regional groups have been formed. The northern group, including Northern California and Nevada, is chaired by Bill Belisle of the State of California Youth Authority. The southern group, comprising Southern California and Arizona, is chaired by Walt Hopkins of Nissan Motor Corp. Yours truly was elected at the joint meeting of the two groups on January 4 to coordinate regional activities and to represent the region to the executive committee, filling the unexpired term of Jon Schmitt.

The northern sub-group held its last regularly scheduled meeting on December 5 at the California State Department of Rehabilitation in Sacramento.

Steve Clark discussed the recent meeting of the Executive Committee. Among Steve's subjects were details of the Houston conference, the current release dates for software items, the new regional structures, and some interesting rumors about the 1981 conference.

Bill Belisle informed the group that a new edition of the Public Sector Catalog is now available.

The Software AG update was given by Richard Currier. He discussed Software AG's work on IBM 4300's, the recent Software AG reorganization, and had some further comments on the '80 conference.

Paul Peterson of Software AG gave a technical presentation on restart/recovery under ADABAS 4.1. Several questions which had been raised on the subject were answered.

Sheldon Brown gave a talk on hints for adhoc reporting, which presented ideas for structuring a data base to facilitate adhoc report generation.

A round-table discussion was held in which each site described how their DBA function interfaced with the application development process.

The meeting ended with an open discussion in which each of the Software AG products was covered. As part of this it was noted that, contrary to popular opinion, a PL/I subroutine can be called from ADACOM.

The southern sub-group, formed in June, has been having almost-monthly meetings at the sites of the various member users. The November meeting was hosted by Ticor Mortgage Corp.

Fred Willis of Ticor gave an overview of Ticor Mortgage as a subsidiary of Title Insurance offering realty tax service, title insurance, and printing services. Ken Ng discussed the current status of ADABAS at Ticor, relating installation problems and the MPM interface interference with CICS which required a zap fix. Ticor is utilizing ADACOM for report writing where feasible, but, for more complex reports DYL260 is used with an interface to ADAMINT.

Walt Hopkins presented a summary of events that took place at a U.C.L.A. seminar on relational data bases and discussed the query by example concept.

Larry Rodda of Western Region TSOP in Denver explained the operation of the technical support center, and suggested that when contacting Denver TSOP for problem resolutions the user have a maintenance log, ADAICK output, and an ADAREP of the data base at hand. Larry introduced Richard Currier, West Coast VP of Sales, and Peter Harris, Southern California's marketing support representative.

Prior monthly meetings were hosted by Hughes Aircraft, Getty Oil and Nissan Motor Corp. In addition to application overviews given by host site representatives, discussions included ADAMINT, Restart/Recovery, the Data Dictionary and DBA policies.

A joint meeting of the two sub-groups was held on January 4 at the California Youth Authority in Sacramento. Cathy Vivona, Software AG's Users' Group Liaison, was introduced to the group and subsequently participated actively in the day's activities.

The first order of business was the election of a Western Regional Representative to fill the unexpired term of Jon Schmitt, who resigned to take a position with Software AG. The election was preceded by a discussion as to whether each installation was entitled to a vote or each user (where there are several discrete users to one installation) had a vote. The former prevailed with a resolution to introduce the matter again at the executive committee meeting in Houston. David Berg was elected to that post with Bill Belisle from the California Youth Authority designated as the backup representative.

Introduction and discussion of each member site's Change/Enhancement Requests followed, with Cathy Vivona moderating and Larry Rodda answering questions about planned product enhancements. About sixty requests were presented. The requests were collated by product and given to me for forwarding to William Thornton, the Change/Enhancement Coordinator.

The next meeting of the Northern sub-group is to be announced; that of the Southern sub-group will be February 8th at the Santa Barbara campus of the University of California.

Rocky Mountain Region

by Nick Gangwish
Jefferson County Public Schools

A Rocky Mountain ADABAS Users' Group Meeting was held at the Warren Technical Center in Denver on January 23, 1980. Fifteen users from eight sites attended the meeting. Software AG was represented by Western Region Manager of Technical Support, Paul Peterson, and three members of the Western Region Marketing Staff; Richard Currier, Peter Harris, and Ed Fox.

Jerry Schade gave an interesting talk on restart/recovery as implemented at the General Government Computer Center (GGCC) in Denver. They have an IBM 3033 and are a service bureau for all branches of state government. To recover from problems encountered during update programs, they have synchronized

IBM's OS checkpoint feature with the ADABAS checkpoint facility. Jerry stated that the effort it involved has proven to be worthwhile. All recovery procedures are composed of utilities provided by either IBM or Software AG. Any inquiries about this procedure should be directed to:

Mr. Jerry Schade
Colorado General Government
Computer Center
2002 South Colorado Blvd.
Denver, Colorado 80222
Phone: 303-759-1221, ext. 218

Mike Quinlan of the University of Utah gave a presentation on COM-PLETE user exits. The University is replacing a TP Monitor named Converse with COM-PLETE. In order to provide users with the same amount of security they had under Converse, Mike has written a user exit that checks to be sure that the call is to an entry point in the called program. The called program then does an authorization check by looking in a table of authorized users. If that user-ID is not found in the table, he is not allowed to continue with the called program. Mike can be reached for further discussion at the following address:

Mr. Mike Quinlan
University of Utah
Administrative Data Processing
150 Park Bldg.
Salt Lake City, Utah 84112

After lunch, Paul Peterson provided a tour of the West Central Region Technical Support Center.

Richard Currier of Software AG then discussed the reorganization presently taking place within Software AG. Richard is in charge of marketing for the Western Region and is currently building up a staff of qualified personnel to serve the Western Region. He introduced Peter Harris, who will serve as a Consultant to ADABAS users and Ed Fox, who is the marketing representative for the Rocky Mountain Region.

Our next meeting will be held in Denver on April 30, 1980.

Southwest Region

Charles Rolls
Texas Department of Highways and Public Transportation

In minutes from our July meeting (then West Central Region), we reported SAGNA policy for support of two releases. Since this does not correctly represent SAGNA policy, we are now presenting the official SAGNA policy:

When a new release is available for distribution, SAGNA may opt to discontinue support for the prior release. If so, SAGNA will issue written notification of its intent to remove the prior release from "current" or "supported" status. Official support terminates 90 days after this written notification is sent.

Northeast Region

by Jack Meth
American Electric Power

The third New York City/Northeast Region meeting was held on January 31, 1980.

Helen Hirsch gave a technical presentation on Restart/Recovery at Morgan Stanley. The goal of their system is to require as little systems or DBA support as possible to keep the MPM up.

Walter Kopica of Johnson & Johnson (New Jersey) gave a presentation on a Generalized Interactive Update System (GENIUS). The system developed at Simon Fraser University in Canada is being distributed in the U.S. by Walt Kopica.

Susan Schultz read a letter from some regional users to SAG. The letter was in response to a SAG commitment in San Diego to include user exits in the ADALOG module. The letter contained specific requests for log exit routines for performance

and chargeback information.

Norman Dutton gave a brief presentation on installation considerations for NATURAL.

George Wolff asked that regional users interested in establishing an ADACOM B.O.X. contact him at American Electric Power (New York).

Notice of the next meeting will be mailed about two weeks before its scheduled date.

Special Newspaper to Highlight Conference Details

A special pre-Conference newspaper will be distributed in mid April. This edition, dedicated solely to Houston '80, will provide detailed information on the Conference and what it will offer to attendees. The newspaper will highlight technical and social agendas for attendees and companions. Details on what to bring and what to do will be included for Conference participants and their guests.

Ideas for Users' Group Name Submitted

If you think SAUSAGE is a breakfast meat, SAGUCI is a famous designer or SAGACIOUS means wise, you're sadly mistaken. These are simply some suggestions for the name of the Software AG Users' Group.

Pending approval of the ADABAS-COM-PLETE Users' Group merger, the group will determine its new name and image.

Additional suggestions are welcome. The deadline for submitting these is April 10, 1980.

ADABAS News

Terminal Mapping Using Natural

by Jim Reiner
County of Sacramento

One of the most useful tools a programmer has when writing on-line programs is the terminal mapping facility provided by the software. However, most mapping facilities provided by the standard programming languages are both cumbersome and time consuming for programmers. But NATURAL, an interactive programming language designed for use in the data base environment, has overcome these deficiencies with its mapping facility. With NATURAL, TP applications can be created and work in a fraction of the time that is necessary when using standard programming languages and TP mapping systems.

NATURAL'S mapping facility is independent of both the TP monitor and the type of terminal used. The programmer defines a screen for the purpose of data entry with the 'INPUT' statement. The 'INPUT' statement allows the map to be defined within the application program and allows immediate data validation and correction. NATURAL verifies that valid numeric data is entered for numeric fields. Data can be entered for a binary field through a hexadecimal constant (one internal position is represented in two input positions). Natural verifies that only valid hexadecimal data (0-9, A-F) is en-

tered for a binary field. The contents of fields may be specified for input only, display only, or display for modification using the keywords *IN, *OUT, and *OUTIN respectively. Fields specified as *IN (the system default) and *OUTIN, will create unprotected fields that may be tabbed to and written to. Fields specified as *OUT are write protected and may not be tabbed to.

The standard programming procedure to format an on-line screen using COBOL and COM-PLETE's Mapping Facility at Sacramento County is:
1. Design the display.
2. Define the map:
   a) Define the location of the desired data within the application program's working storage section.
   b) Define the location of a field control table within the application program that contains the field names and user requested display characteristics.
   c) Code the assembly language statements to define the map.
3. Create a mapping request block within the application program to define the request.
4. Define the I/O buffer area.
5. Code the call statements.
6. Assemble the map.
7. Link Edit the map.
8. Catalog the map in the TP program library.

With NATURAL, all the programmer has to do is:
1. Design the display.
2. Code the NATURAL statements to define the map.

It's as simple as that! See Figure 1 and 2 for an example of a map and the NATURAL statements. Modifying the screen format with NATURAL is even easier; just make the changes in the map definition and then run the program. The standard procedure for modification of a screen using COBOL and assembler requires the programmer to change the map definition, asemble and link edit the map, uncatalog the old map, and then catalog the updated map. NATURAL'S mapping facility is not only more understandable, but it is much easier to implement.

CONSOLIDATED EMPLOYMENT
TRAINING AGENCY
PARTICIPANT ENROLLMENT FORM
22 JANUARY 1980

SOCIAL-SECURITY-NUMBER:
LAST-NAME: FIRST: MI:
STREET-ADDRESS:
CITY: STATE: ZIP-CODE:
POSITION-TITLE:
HOURLY-WAGE:
NUMBER-OF-DEPENDENTS:

Figure 1. Example of a screen to be formatted for on-line use.

```
0010 INPUT 15T 'CONSOLIDATED EMPLOYMENT TRAINING AGENCY' (I) / /
0020        10T 'PARTICIPANT ENROLLMENT FORM' (I) 4X *OUT *DATG(EM=XX⌐X(13) ) / / /
0030        10X 'SOCIAL-SECURITY-NUMBER:' SSN (N9) / /
0040        10X 'LAST-NAME:' LAST (A15) 'FIRST:' FIRST (A12) 'MI:' MI (A1) / /
0050        10X 'STREET-ADDRESS:' ST-ADDR (A40) / /
0060        10X 'CITY:' CITY (A20) 'STATE:' STATE (A2) 10X
0070        10X 'ZIP-CODE:' ZIP (N5) / /
0080        10X 'POSITION-TITLE:' POS-TITLE (A32) / /
0090        10X 'HOURLY-WAGE:' WAGE (N2.2) / /
0100        10X 'NUMBER-OF-DEPENDENTS:' DEP (N2)
```

Figure 2. The NATURAL statements to define the screen in figure 1.

An explanation of the NATURAL statements in Figure 2 follows:

LINE 0010

INPUT Defines the map for data entry.

15T Tab to Column 15.

'TEXT' The text literal within the quotes is displayed write protected.

(I) Displays the 'text' intensified on a 3270 screen.

/ Causes line advance, one line for each /.

LINE 0020

*OUT Defines the following field, *DATG (a standard system function with today's date in the form DDMONTHNAMEYYYY), to be display only.

EM Defines the edit mask for the field *DATG. The field will be displayed so that there is a space, represented by the special character '⌐', between the second and third character (the day and the name of the month).

X(13) Defines thirteen alphanumeric positions.

LINE 0030

10X Insert 10 spaces before displaying the next element.

SSN Name of a user defined field that data will be entered in.

(N9) Defines the preceding field, SSN, to be numeric and nine characters in length. Only numeric data will be valid in this field.

LINE 0040

(A15) Defines the preceding field, LAST, to be alphanumeric and fifteen characters in length. Any data is valid in this field.

LINE 0090

(N2.2) Defines the preceding input field, WAGE, as numeric and six characters in length with two positions to the left of the decimal, two positions to the right of the decimal, one position for the sign (this can be overridden), and one position for entering the decimal point.

The map can also be used to pass parameters from one program to another. NATURAL'S 'FETCH' statement dynamically loads a program into the same area currently occupied by the program containing the 'FETCH' statement, thus overlaying it. Parameter fields passed in a 'FETCH' statement are read by the fetched program with the 'INPUT' statement. The first 'INPUT' statement issued by the fetched program will result in the placement of all parameter field values into the fields specified in the map definition.

See Figure 3 for an example of the 'FETCH' statement and the map. This unique feature allows the programmer to write programs that can be tested either separately by entering values for the map fields through a formatted CRT screen, or in combinations where fetched programs pass parameters that fill the map fields. This feature is particularly useful in the development of structured (modular) programs for on-line systems. It is possible for a program to fetch itself, thereby allowing the programmer to use recursive programming techniques.

PROGRAM-1 "MAIN"

```
0010  INPUT  'COMPUTE TAXES' / /
0020         'ENTER WAGES:'
              WAGES (N7.2) 'TIPS:'
              TIPS (N5.2) / /
0030         'INTEREST-INCOME:'
              INT (N5.2) 'DIVIDENDS:'
              DIV (N5.2)
0040  COMPUTE TOTAL-INCOME
      (N7.2) = WAGES + TIPS + INT
      + DIV
0050  FETCH 'TAXES' TOTAL-INCOME
0060  END
```

PROGRAM-2 "TAXES"

```
0010  INPUT 'TOTAL-INCOME'
      INCOME (N7.2)
0020  COMPUTE TAX (N5.2) =
      INCOME * 0.09
0030  DISPLAY INCOME TAX
0040  END
```

Figure 3. An example of the FETCH statement.

Program-1 prompts the user to enter data for individual incomes. The FETCH statement then loads Program-2 into the same area that is occupied by Program-1. The field "TOTAL-INCOME" is passed by the FETCH to Program-2 and read by the

input statement. The value in "TOTAL-INCOME" is passed to Program-2 and placed in the field "INCOME", then the computation is made and the fields are displayed. If Program-2 were executed alone, the user would be prompted for a total-income value and the tax would then be computed and displayed.
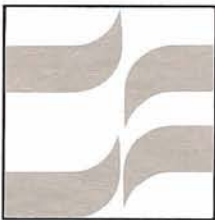
SIG-ADABAS Special Interest Group Reports

DOS

by John Kaye
City of Milwaukee

Nine DOS users (there are perhaps 50, altogether) responded to the DOS User Questionnaire published in our September Newsletter, a respectable turn-out. From these responses, the following patterns emerge:

- 1/3 of the DOS shops delegate DBA responsibility to a Systems Programmer, while the remaining 2/3 have created a separate DBA or DA position.

- Most DOS users have attempted to make adjustments to the amount of real "core" available in the MPM partition in an effort to reduce system paging, and the concensus seems to be that a partition allocation of approximately 100K bytes of real "core" is sufficient to minimize paging.

- 5 of the 9 DOS installations responding have tried adjusting QMAX, but only one has been able to show a notable improvement in performance, and none of the users reported any degradation.

- And finally, only one of the 9 shops reported that they were sub-tasking the MPM in their teleprocessing partition (CICS) using HYPERVISOR.

These results would seem to indicate that most DOS installations using ADABAS are at least large enough to be able to afford to install a DBA position in their DP department. However, most of us are still deeply concerned with making ADABAS as efficient as possible, by whatever means available.

As an aside, I would like to pass on two recent experiences my own installation has had, in hopes that they may prove helpful to other DOS users. First, in May-June of 1979 we installed a software package called FASTTP, marketed by SDI. This program resides in the SVA and serves as an "accelerator" of all I/O operations for a selected partition. The interesting point to be made is that the "acceleratee" partition exhibits a 20% to 40% increase in I/O throughput capability without adversely affecting the other partitions. Second, we have developed a "dynamic password allocation" subroutine which permits us to modify passwords in a CICS application program without the need for re-compiling (or even re-linkediting) the CICS program. This module even

allows the DBA to modify passwords while CICS is active, simply by reassembling the subroutine. Also, the security module itself never appears in a CICS dump, thus preventing inadvertent compromising of the valid passwords presently in effect. While I would prefer not to release the source code for this module, I would be willing to furnish Software AG with a write-up of the methods and principles underlying the program's operation, so that interested users could design their own versions.

I would like to encourage DOS users to submit their profiles for inclusion in the User Profile System. In this way, we can obtain assistance from each other when problems arise.

Education

by John Kaye
City of Milwaukee

The September issue of the Newsletter contained an ADABAS Education SIG questionnaire soliciting information on how present-day ADABAS installations are educating their DBA's, Systems Designers, Program-

mers, and END Users in the use of ADABAS and its related products. As of January 7, 1980, I have received only 15 responses. Is it possible that only 15 of the 400-plus ADABAS installations world-wide are concerned with training and the direction in which Software AG's educational offerings are developed? I certainly hope not. So, on the assumption that the rest of us merely overlooked the questionnaire, I will proceed with a summary of the results.

Question 1 asked the user to identify those areas listed below where an in-house training session had been developed:

a. ADASCRIPT+ for END Users
b. ADAMINT programming
c. ADABAS (native "call") programming
d. ADABAS systems development
e. ADABAS file design
f. ADABAS management overview
g. Other (Please Specify).

User responses indicated the following:

- 7 users developed no in-house training programs, 4 users developed one or two programs, and 4 users developed three or more in-house sessions;
- 4 users developed ADASCRIPT+ sessions,
- 4 users developed ADAMINT classes,
- 4 users developed ADABAS programming sessions,
- 1 user developed an ADABAS system development class,
- 1 user developed an ADABAS file design class,
- 4 users developed Management Overview programs,
- 2 users developed DBA concepts courses,
- 1 user developed an Internals class, and
- 1 user developed an ADABAS techniques and efficiencies class.

Question 2 asked which of the below mentioned Software AG courses the user attended:

a. Using ADABAS
b. ADABAS Internals
c. The DBA
d. Data Administration
e. ADACOM
f. Design Workshop
g. Design Methodology
h. NATURAL.

Responses were as follows:

- 1 user attended no classes
- 8 users attended a class on Using ADABAS
- 12 users attended a class on Internals
- 3 users attended a class on The DBA
- 0 users attended a class on Data Administration
- 4 users attended a class on ADACOM
- 5 users attended a Design Workshop
- 5 users attended a Design Methods class
- 0 users attended a class on NATURAL.

Question 3 sought user comments on education-related matters not covered on the questionnaire. Two users indicated that they felt Software AG's manuals, if better organized and written, could provide most of the educational material presently being developed independently by the user community. One user asked for a course to be developed for the Data Dictionary. Another user requested courses on Control, Audit, and "real world" DBA experience. And finally, several users made mention of the fact that they were new to the ADABAS community and had not been able to avail themselves of the training they felt was needed.

Overall, I feel that Software AG is responding well to user demands for improved training courses, both by their extended list of courses offered and by their avowed goal of redesigning and improving documentation. I would ask merely that consideration be given to producing audio-visual training programs on

such universally applicable topics as:

- ADASCRIPT+ for END users;
- ADAMINT programming;
- ADABAS (native "call") programming; and
- Management Overview.

How about some comments from my fellow users? Would you be willing to purchase such audio-visual presentations? And if so, would Software AG be willing to undertake this venture? Please write me at the address shown in the SIG chairpersons list, and I'll be glad to pass on your views and ideas.

Editor's note:
Software AG of North America is investigating the possibility of preparing audio-visual presentations.
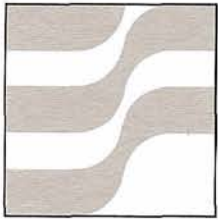
ADABAS
Technical Notes

ADABAS Under DOS/VSE (ECPS Mode) Using 3310 (FBA) Disk

by David Del Rio
Software AG of North America

At present ADABAS is working at two IBM 4331 sites in the U.S.A. (one with 512K core and with 1 MEG). These sites have IBM 3310 disk units (126016 x 512 byte blocks each).

ADABAS runs with 3310 disk (fixed block architecture) via an "INTER-CEPT" routine (ADAZZRZ). This sub-routine "CATCHES" all ADABAS calls to IBM's BDAM routine (IJIFZZRA/IJIFAZRZ) and then converts the TTR (Track/Record Address) into a LBN (Logical Block Number) for an FBA I/O subroutine (ADAFBAIO) that uses "EXCP" to communicate with the 3310 disk. The ADABAS nucleus and utilities still "use" a 3330 disk with the following block sizes:

    ASSO = 1510
    DATA = 3140
    WORK = 3156
    TEMP = 3140
    SORT = 3140

ADAZZRZ and ADAFBAIO use 512 byte blocks (3310 standard) for the data base "data sets" as follows:

    ASSO = 3 x 512
    DATA = 7 x 512
    WORK = 7 x 512
    TEMP = 7 x 512
    SORT = 7 x 512

Thus there is a little "wastage" of disk space, particularly in data storage. This wastage could be reduced slightly by telling ADABAS the disk type is 2314, applying disk-type zaps and converting JCL to reflect the 2314 naming requirements of ADABAS.

2 B-transient routines are also used to "INTERCEPT" ADABAS BDAM related calls: $$BOPEN and $$BCLOSE.

Another program is ADACLRDK that is used to "initialize" the disk data sets. Up to 5 (ASSOCIATOR, DATA WORK, TEMP, and SORT) may be "cleared" in 1 execution.

The main steps for using ADABAS with the 3310 disk are:

1. Assemble and CATAL (link for B-transients and ADACLRDK) ADABOPEN, ADABCLOS, ADAZZRZ, ADAFBAIO, ADACLRDK. Note: Name our BOPEN $$BDMDR, name our BCLOSE $$BDMDR2.
2. Link the nucleus and all utilities that use BDAM with the following cards...
    include ADAZZRZ
    include ADAFBAIO
   Note: ADAHD1 is linked with ADAHOOK. However, in some cases it does BDAM I/O directly also (not thru ADABAS) so ADAZZRZ and ADAFBAIO must be linked with ADAHD1 (ADAHD1 still will link with ADAHOOK also).
3. Rename $$BOPEN to $$BOPOLD and rename $$BDMDR to $$BOPEN all within 1 MAINT-RENAMEC-RUN. Same for $$BCLOSE and $$BDMDR2.
4. Run ADACLRDK to initialize the disk areas. This lets the loader know that there is no autorestart pending and makes for a cleaner disk.

Restart/Recovery in Version 4.1

Mick Wokich
Software AG of North America

Anticipating the release of Version 4.1, we are receiving some questions regarding implementation of restart/recovery in this new system. Here are some comments which address

some questions and concerns I've received on this subject.

1. Some users are concerned about running Version 3.2.1 batch and on-line programs without having to make program changes. It is possible to execute existing 3.2.1 load modules that use ADAHOOK *and* that run in MPM mode without relinking the user program. This is accomplished by providing an interface (ADALNK) that will accept the "flying zap" that ADAHOOK places into it at execution time based on the / /AENQ, etc. DD cards.

2. Users who have a large invest-ment in V3.2.1 update programs but who wish to use the new fea-tures in V 4.1 such as file clusters, auto backout and exclusive use should plan for an orderly and thorough conversion. I would rec-ommend that users select subsets of their entire ADABAS applica-tions programs (hopefully the pro-grams are broken into application "systems") and convert them one at a time. Typically, en masse conversions cause problems for everyone, not just the software house. Of course, file clusters and exclusive use users will have sev-eral new operational considera-tions that should be addressed by the user before conversion. In short, test, test, test, and then test once more. If we can avoid "I just converted, can't go back, and it doesn't work" as problem calls, we and the user will be happier.

3. While many V 4.1 restart/recovery features are oriented to the MPM user, it would be premature to speculate on the reduction of Single User Mode use. Single User Mode has applicability in a variety of environments. 4.1 does discuss MPM mode in much greater detail than prior documentation. This is primarily as a response to the greater emphasis by our user base on the use of MPM as the

"only" mode allowed. We do anticipate a much heavier use of MPM mode as more of the DP world becomes "on-line" oriented. The sharing of data base resources between one or more users concurrently is certainly on the increase and 4.1 is attempting to address this.

4. A large number of users (after reading the V 4.1 Planning Guide) indicated that it seemed like a good idea to make all of their update programs ET logic users and just issue one ET before the final close. This approach will work if the appropriate work space is large enough. I would not generally recommend this as a "blanket" approach to the use of 4.1 features. In the event of abnormal termination, 4.1 will have to remove all updates initiated by the user *and* the user program will have to repeat all the processing associated with the update run. This can cause an incredible amount of overhead to simply get back to where the user left off. The ET process is far better utilized as intended, where utilization consists of the application breaking into small segments the update "cycle" it is going through. It seems to me that the ideal situation (batch update program) from a user's standpoint is:
   a. Acquire the data base resources necessary to accomplish the update (one or more records from one or more files).
   b. Update them.
   c. Issue ET storing data that will allow the program to resume operations with the "next" cycle in the event of abnormal termination (via RE command).
   d. Acquire the next "transaction" and go to 1.

The only logic modification to existing programs this process would require is the issuance of ET storing a position indicator and an additional call at program initialization (the RE command to pick up where the interrupt potentially occurred).

5. Version 4.1 recovery is primarily based on "logical transactions". While the user still has the option of using batch utilities (like ADAFIX, etc.), and automated system based on logical transaction by user is far preferable. The costs are fairly obvious. It will take additional I/O to "remember" all updates that have been processed as well as some additional CPU. The benefits are also fairly obvious. All data base update users are dealt with as individual users and can be "backed out" independently of other users of the data base. Also, the user himself can request a back out dynamically. The major advantage of this entire area is (in my opinion) that the data base and its files can be maintained automatically by the 4.1 nucleus to the most recent ET (for each user) of the data base in the event of system abend, crash, whatever.

Update on ADABAS/IMS Bridge

Software AG of the Far East has advised us that it is developing a new version (Version 2) of the ADABAS/IMS bridge. This version will consolidate the system and generalize existing capabilities of the bridge. As stated in the December Newsletter, documentation for the bridge is available through the Newsletter Editor at Software AG of North America. All other questions regarding the interface should be directed to:

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ADABAS Editor's Notebook
From the Editor

*by Jennifer Lee
Information Handling Services*

I am pleased to accept the position as Newsletter Editor and look forward to serving the User Community. I would like to have the Newsletter, to a greater extent than it is today, become a forum for user opinions, commentaries, criticisms, and the exchange of ideas. I welcome your letters and comments regarding any concerns you wish to voice to the User Community as a whole and to Software AG in particular. I plan to contact as many of you as possible through your regional representatives and Special Interest Groups to enlist your contributions. Your responses will help achieve a more truly representative and interesting Newsletter.

Heuristic Development Status

At the last Users' Conference Jim Wetherbe presented a new approach to systems design named: Heuristic Development (HD). Further research is in progress on this technique. Anyone who has used HD or who plans to use it, please contact Tom Berrisford in Houston, (713) 444-2651, so your experiences can be included in future publications.

ADABAS Product Representative

by Suzan Schultz
American Electric Power

1980 has arrived and so has NATURAL. We have just received the tape, therefore, I cannot comment how the product compares with our expectations. As a TSO user, I have been warned that under TSO NATURAL does not perform as well as the demos would indicate. I do hope the development team will quickly address the limitations inherent to NATURAL under TSO.

1980 brings Cathy Vivona's first Newsletter. From what I hear, she will achieve a first – having the Newsletter out exactly on time.

I do hope that these two events are harbingers of a new attitude in Software AG relative to commitments to the user community.

Please be sure to send me copies of complaints you register with Software AG. I have received very few so far. Does that mean everyone out there is happy? Until a separate NATURAL product group is warranted, please send me your comments concerning NATURAL.

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ADAMINT
Vacant

COM-PLETE News

COM-PLETE Special Interest Group

COM-PLETE/ ADABAS/NATURAL Integration

Steve Clark
County of Sacramento

In my first article I indicated my intention to use this column as a forum; a forum in which the ideas of the user group could be presented and discussed in order to present a uniform approach to change enhancements that would be of benefit to the combined product user. Throughout this past year we have discussed:
1. An integrated ADABAS/ COM-PLETE DB/DC.
2. Dynamic execution of ADAMINT modules under COM-PLETE.
3. Integrated on-line transaction logging for back-up recovery purposes.
4. An integrated security system.
   I intentionally ignored the fifth topic we discussed – on-line updating of ADASCRIPT+ macros under COM-PLETE – as this is more of an annoyance that should be fixed regardless of any change/enhancement procedures.

As a direct result of the published discussion on each of the above topics I have formulated four change/ enhancement requests in the name of the "SIG INTEGRATION" and submitted them to the Change/ Enhancement Coordinator. The changes are as follows:

Product Name	Title of Request	Category
1. COM-PLETE/ ADABAS	Integrated DB/DC	Performance
2. COM-PLETE/ ADABAS	On-Line Dynamic ADAMINT	Performance
3. COM-PLETE/ ADABAS	Integrated Logging	Performance
4. COM-PLETE/ ADABAS/ NATURAL	User Definition Facility	Security/ Control

If you are now using more than one of Software AG's products or plan on using more than one of their products I urge you to give special consideration to the change/enhancements above. Each product should effectively enhance the operation and functional capability of the others rather than just working together and tolerating each other as they do today.

One final note: If you ever plan on working with NATURAL from a CRT, please vote for a full screen editor.

COM-PLETE Security and Accounting Special Interest Group Accounting for On-Line Use of ADABAS

Don Brown
County of Sacramento

A problem that many multiple user organizations have is how to account for resource use and costs as-

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sociated with the use of ADABAS in an on-line environment. There are generally two main objectives for such an accounting. One is to help gauge the performance of the product in specific hardware configurations and supporting specific applications systems. The other objective is to recover costs by equitably billing the various users of the system. The question is, how does one do this?

I would like to hear from members of the Users' Group and learn how your organization has solved this problem, or if not, why. This column is an excellent place to share this information among one another, and I think we can all benefit by doing so. My address and phone number are listed in this publication, so please write me an informal note or else give me a call and we can discuss this common concern.

To begin this dialogue, I will list three areas in which cost and resource accounting are desirable:

1. One area in which costs certainly must be justified and perhaps billed to certain accounts, is the purchase (or lease) price of ADABAS and COM-PLETE (or CICS, etc.) software. Are these costs going into some 'overhead' account which is somehow billed to individual users? In fact, do your accountants even understand what an ADABAS or COM-PLETE is? When the County of Sacramento first purchased ADABAS, an accountant came into the Systems and Data Processing Department with a fixed assets inventory sticker in his hand looking for an ADABAS to tag. Where would you have told him to stick it?

2. The second area of concern is the disk space which is occupied by ADABAS files (both data and associator). Do you charge back the cost of this space by field, file, index, or is it again lumped into 'overhead'?

3. The third area for cost and resource accounting is the MPM. The MPM resides in main memory, consumes a certain number of CPU seconds, and issues numerous EXCP's. Do you account for the MPM based on resources utilized by each user application call, or do you just divide the cost by the number of users?

These questions are just the beginning. Please contact me and we can discuss this topic further.
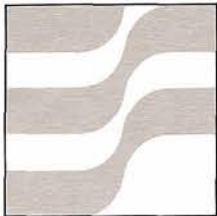
COM-PLETE Technical Notes

Preliminary Design for File I/O and Restart/Recovery for COM-PLETE Application Programs

Software AG of North America

As you may already know, we are developing a new file I/O and restart/recovery system for COM-PLETE. A design group has been established and work has been started to define the following:

- facilities and formal interface offered to COM-PLETE applications programs,
- connections with COM-PLETE nucleus,
- internal structure and interface between the major components, and
- content of the most important control blocks and system files.

I. Interface towards application programs
The formal interface will be as similar to the actual file I/O interface provided by COM-PLETE as possible. This will allow compatibility at a logical level and automatic conversion (by means of a small bridge) between old and new requests. All standard IBM file organization will be supported with fixed, variable, undefined length records, blocked or unblocked, to the same extent as the standard IBM access methods do. All standard accesses will be supported, including the access by alternate indexes for VSAM files.

The following additional facilities which will be available are:
- records blocking for BDAM files, as supported by CICS,
- browsing on ISAM files without using QISAM, in order to allow concurrent browsings on the same file,

- browsing on PDS directories.

A particular command, TFET, will advise the recovery system that the transaction has arrived at a logical completion point so that any interruptions after this point will not affect the integrity of data. All updated records can then be released for other applications.

II. Connections with COM-PLETE nucleus

A requirement of the file I/O system is that the COM-PLETE nucleus "call" it in the following cases:

1) at system start-up, in order to set up its own environment and to manage restart operations,
2) at system shut-down, in order to close the activities,
3) whenever a roll-out occurs, in order to permit to free as much storage as possible (if necessary),
4) whenever an abend occurs within a thread in order to manage updated files,
5) each time an operator command is entered for the file I/O system,
6) Force rollout of application,
7) Program termination

In addition to that, an extension to the User Program Control Block (UPCB) will be necessary to keep control information on active transactions.

III. System architecture

For the most part, modules will be reentrant. Some will also be recursive, to allow for nesting of requests. The major components of the system are:

- I/O Interface
- Queuing
- Recovery/Restart
- Access methods interface
- System functions
- Batch emulator and utilities

a. I/O Interface

The I/O interface will receive all application program requests and will drive their processing. Basically this section will have only routing functions through the service modules of different components, at a very high logical level.

b. Queuing

The queuing system will not rely upon OS ENQ/DEQ functions but will have its own queues identified by file DDname and a minor queue name that can be a record identifier or a keyword for locks at file level or at specific function level. The queuing system will allow shared or exclusive resource control, will allow resource availability testing and will be able to recognize deadlock conditions at the time of their occurrence.

c. Recovery

1. The X-image

The basic idea upon which the recovery system will rely, consists in keeping track of each record update in the form of an "exclusive-or" between the before image and the after image of the record. This form, which will be referred to as the X-image, will allow both functions required by an online recovery system:

- updates back-out, that can be accomplished by an additional or-exclusive between the updated record and the X-image,
- updates reconstruction, that can be accomplished again by an or-exclusive operation between the X-image and the non-updated record.

The system will recognize if a record has been completely updated or not (the X-image and additional internal information are used for this purpose). The X-images written in the same sequence as the occurrences of their corresponding updates are written to a Log file. An X-image will be written before its corresponding update takes place in order to ensure the capability of backing out the update. Typically backouts will be requested when the transaction processing is interrupted due to a system failure, a program abend or a deadlock condition. The Log file will also be used to reapply updates when files updated dur-

ing on-line operations have been damaged.

2. Minimization of Log write operations

One major goal in the design of the recovery system was to reduce to a minimum the overhead due to the recovery functions.

Therefore, all X-images generated by all active threads will be accumulated in fixed length blocks, and the physical write of a block will be deferred as much as possible. Generally, this will be written only when enough X-images have been accumulated to fill its entire length. Deferring the write of an X-image obliges the system to defer its corresponding update. So, all update operations requested by the application programs will not be executed in-line with the request but will be done asynchronously as soon as the X-image will be physically written onto the Log file. (This implies that application programs will be able to handle exceptional completions for write operations. This should be acceptable in updating existing records, where an exceptional condition is basically an I/O error which can be managed by a system exit routine; but inserting new BDAM and ISAM records, a space not found condition required to be handled in-line by the application program. Therefore such record insertions will exceptionally force the Log block to be written and will be executed in-line with the request of the application program.)

3. Minimization of Log disk space requirements

In order to save disk space, X-images will be compressed by eliminating all zero sequences (corresponding to non-updated strings of characters) and by associating with each non-zero sequence (cor-

responding to an updated string of characters) its length and displacement from the beginning of the record. Furthermore any Log blocks that have been written without being completely filled, will be rewritten with additional X-images. X-images will also be allowed to span across different Log blocks in order to ensure the maximum utilization of free space within Log blocks.

4. Main storage requirements minimization
Each read operation with the intent of update brings the physical block containing the requested record into main storage. That is kept in main storage until:
- the update is done, after the corresponding X-image has been written – in the case of required back-out, the block will have to be reread,
- a roll-out occurs – the block will be reread later, when the application program issues the update request.
  In both cases the record is logically held, until the end of transaction.

5. The log subtask
Since the operation sequence 'X-images logging – file update – buffer release' takes place asynchronously with respect to the application programs, it seems convenient (in terms of coding efficiency and ease) to let such sequences be processed by a specialized subtask. This subtask will receive logging requests from threads, accumulate requests on log blocks, write log blocks when filled or when explicitly requested, check log write operations, execute file updates, free written buffers.
  The two last operations will probably imply widely spread references to the virtual storage (different access methods routines and large scattered areas for file blocks), and therefore may give page faults. These page faults may delay the logging and updating activity for the whole system. In order to prevent this possible bottle-neck, the log task will not execute update operations and buffer releases by itself, but will activate asynchronous exit routines (by means of operating system's Interruption Requests Blocks) which will perform these operations under the TCB of the thread.

6. Transaction termination
When an application program issues the TFET command the following processing will take place:
- a special entry – logical termination – will be inserted in the stream of requests for the registration on Log file. After a logical termination has been logged, all transaction X-images will have already been logged. So, in the case of system failures, the transaction will no longer be backed out, but probably will still have to be completed;
- all file write operations will be checked for completion;
- an additional special entry – physical termination – will be inserted in the log stream, this entry is logged when the transaction has been physically completed;
- when the physical termination entry scheduled for logging, all held resources will be released for updates by the other threads.

7. Transaction recovery
A transaction recovery will take place when:
- a program abend occurs;
- a deadlock condition is encountered;
- a system failure occurs.
  In the first two cases a dynamic back-out is done for all updates which have been physically done at the time of the exceptional event. Backing out is done by reading X-images from the log file, reading updated records, checking update completion for each record, reapplying the X-image to updated records and writing them back to the user file. In the case of a system failure a warm start process automatically takes place when the system is brought up. The active transaction is determined for each thread. Depending on the status of the transaction, different actions are undertaken:

- logical termination not yet written – the updated records will be backed out with the same logic described for the case of program abends;
- logical termination written and physical termination not yet written – the transaction will have to be completed, therefore its X-images will be scanned, records will be read and, if not yet updated, their X-image will be applied before rewriting them to the file;
- logical and physical termination written – the transaction is completed and nothing more has to be done.

d. Access methods interface
This component will offer to the I/O interface a set of logical functions which will be substantially independent from the access method:
- read a block by block identifier,
- read a block by logical record identifier,
- write an updated block,
- add a logical record,
- delete a logical record,
- check a read/write operation for its completion,
- search a logical record within a block,
- positioning into a PDS member,
- alter PDS directory,
- get a PDS directory entry.
On the other side, this component will have interfaces towards the

following access method:
- BDAM
- BISAM
- VSAM
- BSAM
- BPAM

All interferences between conflicting operations (for example concurrent insertions and updates on ISAM files) are resolved by this component using the described queuing functions.

e. System functions

The main function of this component is to ensure an interface between the file I/O – recovery/restart system and the COM-PLETE nucleus. Therefore this is basically the only component which relies on the COM-PLETE environment.

f. Batch emulator and utilities

The utility programs to be used in conjunction with the file I/O and recovery/restart system are generally in the form of COM-PLETE application programs. Therefore a batch emulator will be necessary in order to ensure to such utility programs the required subset of the online COM-PLETE environment. In the first version of the file I/O and recovery/restart system only one utility will be provided for the reconstruction of files damaged after having been updated during online processing.

The design group estimates this project to be a 4-5 person year effort. As soon as the design is completed, a detailed implementation schedule will be published.

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COM-PLETE
Editor's Notebook

Letter to the Editor

Editor:

I work for the Operations Division at the computer center which supports a multitude of applications at the County of Sacramento. We utilize many software products to help us do our job, among them COM-PLETE and UCC ONE (known to us as the Tape Management System or TMS). Since TMS is a popular product, I am certain that many other COM-PLETE users also use it. For many months now we have been using an in-house written on-line utility which allows us to inquire into TMS at any COM-PLETE terminal. This is much faster and more convenient than using TMS supplied facilities to get the latest information on the status of specific tape files.

We are now getting ready to embark on a more ambitious development effort in this area. We would like to expand our inquiry ability and develop an on-line TMS update capability through COM-PLETE. However, it has occurred to me that one or more other users may have already developed this facility and would be willing to share their experiences with us. If not, we would be willing to hear from other users anyway, because if this on-line TMS system is of interest to them, we would probably share it with the COM-PLETE users' group.

Thus, I want to take this opportunity to invite any COM-PLETE and TMS users to contact me and discuss these ideas.

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*UM.essage from the *UEDIT.or

Alan Routhier
County of Sacramento

About the time that you receive this issue of the Newsletter, someone in your organization will be receiving balloting materials for the ADABAS, COM-PLETE, and NATURAL change/enhancement procedures. Each organization will receive sets of balloting materials according to which products it has acquired from Software AG. Each organization has its own procedures for determining how to allocate its allotted votes among the various items to be voted on. You may or may not be involved in this voting process, depending upon your position in the organization. However, every individual has an opportunity to influence how votes may be cast.

I am, of course, referring to your opportunity to explain and lobby for your favorite change/enhancement through the use of the Newsletter. You may write an article which presents your ideas in great detail, write a 'letter to the editor' which can simply introduce your topic and bring it to everybody's attention, or you may contact the chairman of the appropriate special interest group and have him help you present your concerns in his column. With a little effort on your part, you could keep a running presentation across several issues of the Newsletter. Therefore, when change/enhancements arrive at all the users' doorsteps, yours will stand out among the crowd.

The change/enhancement format does not leave much room for the presentation of complex concepts. By utilizing the opportunity to communicate with your fellow users in the four issues of the Newsletter which are published each year, you can more than compensate for this change/enhancement deficiency.

Now, you may think that it is too late to promote your favorite change/enhancement, but this is not the case. Part of this procedure involves an open discussion of Software AG's responses to the change/enhancements at the annual users conference. Thus, you have another opportunity to influence the events which help determine how Software AG will act on users' requests during the coming year.

Software AG
OF NORTH AMERICA, INC.
News

Documentation Status Report

by Rick Josephs
Software AG of North America

As outlined at the San Diego Users' Conference, an extensive restructuring and upgrade of the documentation of the entire Software AG product line is in progress. The following is an update as to what has been accomplished to date.

The first portion of the ADABAS Version 4 manuals has been completed. This includes the Version 4 Conversion Guide, the Version 4 Command Reference Manual, and the Version 4 Programmer's Guide for TP Applications. The remaining Version 4 manuals are in the final stages of preparation.

In addition to the above manuals, extensive resources were devoted to the preparation of the NATURAL Version 1.1 documentation set. This set includes the NATURAL Installation and Operations Manual, the NATURAL Users' Guide, and the NATURAL Reference Manual. An intensive effort was made to make these manuals as effective as possible from the user's standpoint; for example, the NATURAL Reference Manual contains approximately 100 examples of NATURAL statement usage.

Revised editions of the Data Dictionary documentation (Version 1.1) and ADACOM (Version 1.2) are also being completed and are scheduled for printing in February.

Work is continuing on the ADABAS-M documentation in preparation for the upcoming release of Version 1.1 of ADABAS-M, and revised editions of the COM-PLETE Version 3.0 Assembler and PL/1 Programmer's Reference Manuals are also nearing completion.

Although the emphasis is currently on the development of high quality documentation for the various new releases of software becoming available, the parallel objective of providing timely and comprehensive updates to existing manuals has not been discarded. We plan to initiate a regular documentation update service beginning in the second quarter of this year. This effort will be facilitated by the fact that all documentation created within the past eighteen months is stored online for ease of access and modification.

A summary of all current and planned documentation for the entire Software AG product line has been prepared and will be distributed in February to all users of Software AG products.

Letter of Thanks

January 25, 1980

TO: Software AG Users' Group
FROM: John Maguire

ADABAS is on the Datapro Honor Roll for the third consecutive year. It is one of forty-four software products given that special recognition out of over two thousand rated. COM-PLETE came very close to receiving the same honor, with very creditable ratings reported.

I want to thank each of you for your continued support and confidence and especially thank those of you who received the Datapro survey forms and responded.

We are expanding our technical resources to insure that we will continue to merit such support from you. Our commitment to increasing our research and development activity will assure our clients that our software products will continue to be "state-of-the-art".

John Morris Maguire

Software AG Participates in China Trade Mission

John Maguire will represent Software AG of North America at the China Trade Mission, March 13-29, in the People's Republic of China.

Working through Computerworld's International Marketing Services, Software AG presented its credentials as a leader in data base/data communications technology. After reviewing applications from many computer hardware and software companies interested in participating, the Chinese Institute of Electronics, the Mission Sponsor, invited Software AG to be a member of the mission.

Mission attendees will have the unique opportunity of seeing different facets of Chinese society. Touring plans arranged by the Mission include cultural and historic landmarks as well as a glimpse into Chinese computer technology.

The technical seminars, scheduled for five days of the Mission's duration, will focus on the role of data base systems in data communications networks. Presentations will cover a variety of topics focusing on determining data base/data communications requirements, choosing appropriate hardware and software for DB/DC needs and implementing and maintaining the DB/DC system.

John Maguire, President of Software AG

Reston Education Center Special Course Announcement

- Version 4 Restart/Recovery Seminar April 14
- ADAMINT MACRO Coding April 15
- COM-PLETE Systems Control May 7-9

For further information contact the Education Dept. 703/860-5050

Education Center Opens

by Gary Bowers
Software AG of North America

The Software AG Education Department is pleased to announce the opening of the Software AG Reston Education Center. The classroom facilities, which are situated adjacent to our new offices in the Town Center Building in Reston, Virginia, will provide comfortable seating for as many as twenty-eight students. In addition, we have available in the classroom four 3270 terminals which are connected to Software AG's Reston Computer Center. The classroom design is suitable for large lecture classes or smaller workshop oriented sessions. All Reston public classes beginning with the March 10-11 'NATURAL Programming' class will be held in the Reston Education Center. Availability of these classroom facilities will allow for greater flexibility in scheduling public classes, with the periodic announcement of special classes in this Newsletter.

The Education staff recently put considerable effort into curriculum review and development for both ADABAS and COM-PLETE courses. All ADABAS courses have been revised to include up-to-date information relevant to Version 4 capabilities. This has caused a major redesign of almost all courses, with greater emphasis on problem solving and a workshop approach. The COM-PLETE curriculum is being expanded by the addition of the new 'COM-PLETE Systems Control' course, which will be offered in a public session in Reston on May 28-30. The 'COM-PLETE Applications Workshop' also is being restructured and expanded. The 'NATURAL Programming' course has been modified significantly to allow the presentation of a two-day lecture class, or a three day 'NATURAL Programming Workshop'. In addition, a one-day 'NATURAL Introduction' course is available.

Software AG has greatly expanded its public education schedule in 1980 to satisfy the increasing demand for registration in these classes. Nevertheless, we often have difficulty accommodating all enrollment requests. For one class in January it became necessary to run two concurrent sessions in order to meet the demand. It is strongly recommended to guarantee class registrations, that they be placed as far in advance of the class date as possible.

The Software AG Education Department is grateful to the many class attendees who have made suggestions for improving the quality of the education program. Please feel free at any time to contact the Education Department if you would like to discuss the education program or your individual education requirements.

Gary Bowers, Joe Gilley and Leslie Malone of the Software AG Education Staff.

ADABAS V4.1

Status: Beta testing
General availability (limited to 2-4 production installations   Mar. 1980
per month for the first 3 months)

NATURAL V1.1

Status: OS—available
DOS—final beta testing

General availability: DOS   May 1980

ADABAS-M V1.1

Status: Beta testing
Beta testing: Five to ten sites
General availability   May 1980

COM-PLETE DOS

Status: Initial design/planning
General availability: 12-18 months

COM-PLETE VTAM SUPPORT

Status: Currently available on request
General availability: June 1980

Data Dictionary V1.1

Status: OS—Final beta testing
DOS—Initial beta testing
General availability: OS   March 1980
DOS   April 1980

ADACOM V1.2

Status: OS—Final Beta Testing
DOS—Initial Beta Testing
General availability: OS   April 1980
DOS   May 1980

ADASCRIPT+ V1.1

Status: OS—available
General availability: DOS   March 1980

ADAMINT V1.4

Status: Final beta testing
General availability: with ADABAS V4.1

SOFTWARE AG
EDUCATION PROGRAM March – June 1980

Month \ Class	Using ADABAS	ADABAS direct calls	Adacom	ADABAS internals	DATA BASE administration	ADABAS design workshop
March	SEATTLE Red Lion Inn 3-5 Version 4	SEATTLE Red Lion Inn 6 Version 4	SEATTLE Red Lion Inn 7	SEATTLE Red Lion Inn 11-12 Version 4		
April	NEW YORK St. Regis Sheraton 21-23 Version 4	NEW YORK St. Regis Sheraton 24 Version 4	NEW YORK St. Regis Sheraton 25	NEW YORK St. Regis Sheraton 28-29 Version 4	NEW YORK St. Regis Sheraton 30-May 1 Version 4	
May	RESTON SAGNA 19-21 Version 4	RESTON SAGNA 22 Version 4	RESTON SAGNA 23	RESTON SAGNA 27-28 Version 4	RESTON SAGNA 29-30 Version 4	NEW YORK St. Regis Sheraton 2
June						HOUSTON Galleria Plaza 9

NATURAL	(LBMS) design methodology	(DBD SYSTEMS) Data Admin. & Control.	ADABAS V.4 facilities & Conversion.	COM-PLETE apps. workshop	COM-PLETE internals
HOUSTON Hyatt Regency 3-4		NEW YORK St. Regis Sheraton 26-28	SEATTLE Red Lion Inn 10		
RESTON SAGNA Education Center 10-11					
OTTAWA Four Seasons Hotel 17-18					
SEATTLE Red Lion Inn 20-21					
CHICAGO Oak Brook Hyatt 3-4					RESTON SAGNA 21-23
NEW YORK St. Regis-Sheraton 3-4					
SACRAMENTO Red Lion Inn 23-24					
RESTON SAGNA Education Center 1-2	OTTAWA Four Seasons 28-30			RESTON SAGNA 12-15	
HOUSTON Galleria Plaza Hotel 8-9					
LOS ANGELES Sheraton Town House 15-16					
	SAN FRANCISCO Sheraton Palace 2-4	LOS ANGELES Sheraton Town House 30-2			

Current Release Levels

The following is a list of current System Modifications that are available. Please notify Software AG's "Reston Technical Operations" if you need current SM's.

ADABAS:

ADABAS Nucleus & Utilities – Version 3.2.1, SM Level 9
ADAMINT – Version 1.3, SM Level 1
ADACOM – Version 1.1, ADABAS SM Level 9 (ADACOM Zap Level 10)
ADASCRIPT – OS, VERSION 1.1
          DOS, Version 1.0.3
DATA DICTIONARY – Version 1.0

COM-PLETE:

MVS – Version 3.1
VS1 – Version 3.0
MVT and SVS – Version 3.0
MVS & VS1, both with VTAM – Beta Test Version 3.2

Expo 80 New York City New York Coliseum	April 22-24
Federal DP Expo Washington, D.C. Sheraton Washington Hotel	April 28-30
ACM– Ohio Chapter Columbus, Ohio Lane Avenue Holiday Inn	May 8-9
NCC Anaheim, California Anaheim Convention Center	May 19-22
Federal Computer Conference Washington, D. C. Sheraton Washington Hotel	September 22-24
Info 80 New York City New York Coliseum	October 6-9

Emergency Technical Support Procedures

Users in the eastern region (all states east of the Mississippi and Minnesota and Missouri) requiring emergency technical support for either ADABAS or COM-PLETE can call 703/860-8100. During non-business hours, these calls may not be answered by a Software AG technician but the operator will be able to reach a support person so that we can respond promptly.

Users in the western region will still continue to call the Denver Office (303/233-6500) where the same procedure will be followed.

Software AG Participates in Trade Shows

Software AG will be seen in many parts of the country this year at selected trade shows. If you're in the area, please stop by and say hello:

Expo 80 San Francisco Bay Area San Mateo Fairgrounds	March 19-21
Federal ADP Expo of Tidewater Norfolk, Virginia Scope Convention Center	March 20
Expo 80 Dallas, Texas Dallas Market Hall	April 1-3

TownCenter – Home of Software AG of North America's Education and TSOP Staffs

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Dates to remember

April 1, 1980 Papers for Conference

April 28, 1980 Registration for Conference

July Newsletter copy due June 23, 1980

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