

CONNECTIONS

VOL. 13 ■ NO. 2 ■ MAY, 1988

SPRING ISSUE

NATURAL CONSTRUCT Available Soon for IBM Environments



Jim O'Leary
Product Manager

The introduction of NATURAL in 1979 and NATURAL 2 in 1987 produced quantum improvements in software development productivity. The release in January of the NATURAL CONSTRUCT application generator for VAX environments, and the upcoming June release for IBM environments, represent important new milestones. With NATURAL CONSTRUCT, NATURAL developers can prototype and develop common business applications in a fraction of the time previously required. This exciting new extension of the NATURAL development environment will change the way NATURAL application systems are developed in the future.

CASE Comes to Software AG

NATURAL CONSTRUCT is the first in Software AG's new line of Computer Aided Software Engineering (CASE) products, the NATURAL Engineering Series. The goal of the NATURAL Engineering Series is to provide automated support for the entire software development life cycle, from application planning through maintenance. NATURAL CONSTRUCT brings automation to the implementation and maintenance phases by providing the ability to generate NATURAL applications.

Programs produced by NATURAL CONSTRUCT can be used in pro-

duction "as is," or may be modified to accommodate the needs of a particular application. In the latter case, NATURAL CONSTRUCT serves as a potent prototype tool for generating fully functional, first-cut applications, quickly. NATURAL CONSTRUCT is far more than just a prototyping system, however, as evidenced by its past use in the development of several commercial application packages, as well as a large number of customized applications.

Generating NATURAL Applications

NATURAL CONSTRUCT is based

on the observation that most application programs are variations of a small number of common program types, represented in NATURAL CONSTRUCT as program "models." Each model consists of a combination of standard NATURAL statements, which specify the basic program structure and control flow of the program, and NATURAL CONSTRUCT generator statements, which specify open characteristics, such as what data base files and maps are used, or whether audit trail logging is desired.

continued on page 10

President's Message



Carlo A. Scagnelli
Central Hudson Gas & Electric Corporation

Having just seen a video of myself in Miami, you are all to be commended for your ability to endure such torture (and I didn't have to watch a 20 foot screen as well). I vow that Nashville will be much shorter both to your benefit (and mine).

There seems to be a misunderstanding as to how to form a SIG (Special Interest Group). A SIG is a group of users with common interests who formalize their relationship as a viable entity within SAGGROUP. To initiate the process, a user com-

municates with the SAGGROUP Elected Product Representative indicating the purpose of the SIG, its aims, goals etc. The SIG is tentatively approved if a group with similar interests does not already exist. It is incumbent on the initiator to prepare a Connections article with the goal of getting other users to join the SIG. At the next International Users' Conference, the 'chairperson' can petition for permanent status again through the related SAGGROUP Product Representative. The petition will be approved IF the SIG proves that it is active and viable. Note that the SIG is established through SAGGROUP, not Software AG and all contact must be made through your elected representatives, not Software AG personnel.

I've received several newsletters from SIGs and regions over the past few months with an outstanding effort from the Eastern Regional VAX

continued on page 2

President's Message

continued from page 1

VMS SIG. It contained hints, suggestions and a program written in DCL called READ QUE and reflects a level of activity that should be more evident among other SIGs; a way to keep people informed, interested and motivated between Connections issues. Copies should also be forwarded to your SAGGROUP product reps for inclusion in Connections. We thought you were out there; what better way to let us all know.

The College/University BIG conference was recently held in Wilmington Delaware. All you BIG chairpersons take note; this meeting had over 200 attendees discussing industry issues. There's no reason that other BIG's can't get it together in the same way. It takes time and effort but if spread out among several individuals the results can be more than substantial. Get in touch with Randy Ebeling, College/University BIG Chairperson and see how it's done. I've always found that people want to get involved but need the leadership and direction to get things started. That's where the chairpersons come in. The work comes with the territory. You'll be happily surprised at the results of your efforts.

1988 Connections

Editorial deadlines for this year's Connections are as follows:

Issue	Editorial Deadline
August 1988	June 15th
December 1988 (post-conference issue)	October 21st

Please submit materials to:

Pam Ellis
Software AG
11800 Sunrise Valley Drive
Reston, VA 22091

If you have any questions regarding editorial please feel free to contact me at:
703-648-2570.

Table of Contents

Software AG News	PAGE
NATURAL CONSTRUCT Available Soon for IBM Environments	1
NATURAL Elite Experiences Growth	3
Where Can You Find a Consultant When You Need One?	3
Conversion Guidelines: NATURAL V1.2 to NATURAL 2	4
New Options for Preventing Duplicate User ID with NATURAL 2 Security	5
Programmed Programming Success	5
Human Services Solutions: When the Best Meets the Best	13
Software AG Product Status Report	24

User Group News	PAGE
President's Message	1
NATURAL 2 Conversion Experiences	14
ADABAS 5 Performance Update	14
ADABAS Product Representative Report	15
The 8th Annual Israel Users' Group Conference	16
NATURAL Elite Special Interest Group Started	16
How One User Increased NATURAL 1.2.7 Buffer Pools Under CICS	23

Regional Reports	PAGE
New England	17
Eastern	17
Sierra Pacific	18
Southwest	19

NATURAL Elite Experiences Growth

Susan Lowy
Instructional Technologist
Customer Service Division

If the first part of 1988 is any indication, NATURAL Elite is definitely making a big impact in the Software AG product line. Not only does Elite continue to grow as a product, but it also continues to grow in user recognition. Currently, we have approximately 130 customers!

NATURAL Elite for VMS is currently in beta test and will soon be available. The following courses will be available with the initial release of this product:

- Introduction to NATURAL (V1.3)
- NATURAL for the Business Professional (V1.3)
- SUPER NATURAL Fundamentals
- Advanced SUPER NATURAL
- SUPER NATURAL Administration

When VMS Elite is compatible with NATURAL 2, the corresponding courses will also be made available.

Another exciting occurrence is the release of Elite 2.0 for both the Presentation and Administration subsystems (we anticipate the release of the Authoring subsystem later this year). Elite 2.0 will run under both NATURAL 1.2 and NATURAL 2. During the install procedures, the DBA indicates which version of NATURAL will be used to run Elite. You will be able to define PF-keys to match those established by your organization and you will be able to access your own applications, as desired. Also, you'll be able to toggle between Elite and NATURAL 2 using a PF-key.

With the release of the Authoring subsystem, this version of Elite will take advantage of some of the enhanced capabilities of NATURAL 2,

including the use of the NATURAL 2 Map Editor.

Amid all these software releases, we still continue to develop courses. We have concentrated our recent efforts on the development of courses geared to the NATURAL 2 user. These courses include:

- NATURAL 2 Enhancements (July 1987)
- NATURAL 2 Introduction (November 1987)
- NATURAL 2 for the Business Professional (December 1987)
- NATURAL 2 Intermediate Programming (April 1988)
- NATURAL 2 Advanced Programming (Summer 1988)
- NATURAL 2 Structured Design (Summer 1988)

The last three courses listed above are part of our structured mode series (i.e., these courses concentrate on NATURAL's structured mode format versus the report mode format).

In addition, we continue to work on ADABAS courses (to be released concurrently with the release of ADABAS 5). In April, we sent the NATURAL CONSTRUCT Applications course to beta testing, and we expect to release it in May.

And, finally, it's official: an Elite Special Interest Group (SIG) has been organized and currently has over 60 members! It was organized by Tony Cortese and Michael Kochcroft of EG&G Florida, Inc. (see the related article in this issue of Connections). For more information, please call Tony Cortese at (305) 867-4042, or write:

EG&G Florida, Inc.
P.O. Box 21267
Kennedy Space Center, FL 32815

Attn: Tony Cortese
BOC-29

For information regarding the purchase of Elite, please contact your Software AG Account Representative or call Software AG's Telemarketing at 1-800-843-9534.

Where Can You Find a Consultant When You Need One?

Larry Jayne
Manager, Business Relations

If you are looking for a consultant to help you develop a business solution for your organization, where can you find one?

Within the Software AG community there are several sources of consultant skills available. Two of them are located inside Software AG. The first being the Professional Services Group who performs systems analysis, data and systems conversions and tuning. The second one is the Custom Solutions Group who develops and implements customized NATURAL based applications and systems design.

One additional source of consultants is also available to all licensed Software AG customers. It is the list of members of the Consultant Cooperative Support Program. Each of

these member organizations has agreed with Software AG to work cooperatively with us in assisting our customers in developing new systems and applications to meet the customers needs.

To contact either the Software AG Professional Services Group or Custom Solutions Group call Software AG in Reston at (703) 860-5050 and we will put you in direct contact with them. You can then determine which of these groups can provide the services you need.

To obtain a list of the members of the Consultants Cooperative Support Program call Software AG in Reston at (703) 648-2565 and ask for the Consultants List. We will gladly send you a copy. You can then contact any of the consultants on the list to determine for yourself if they have the skills your organization needs.

Conversion Guidelines: NATURAL V1.2 To NATURAL 2

Mark Cade

Customer Service Division

Section 1: Basic Information

There has been a great deal of confusion concerning the implementation of existing NATURAL V1.2 applications in a NATURAL 2 environment. One of the major points of confusion concerns the definition of two terms used to describe the implementation of a NATURAL V1.2 application.

The following definitions are supplied to make the implementation process easier for you.

Term	Definition
Migration	Movement of NATURAL V1.2 object code to a NATURAL 2 environment or execution of NATURAL V1.2 object code in a NATURAL 2 environment by use of the fuser parm.
Conversion	Creation of NATURAL 2 object code accomplished by either recataloging a NATURAL V1.2 source program, or by the "run" of a NATURAL V1.2 source program in a NATURAL 2 environment.

Section 2: How to Determine Whether to Migrate or Convert?

The key to the implementation process is to figure out if you need to convert or if you can just migrate. Most people will be able to migrate, but there are those who will have to convert.

Answer the following questions to determine your needs:

1. Are source changes to the application necessary?
2. Does the application contain programs that are invoked using the "run" command? This is generally utilized only for a program using the dynamic global variables available in NATURAL V1.2

If you answered "yes" to either one or both of the questions, then read Section 4, "The Conversion Process"; otherwise, read Section 3, "The Migration Process."

Section 3: The Migration Process

Migration of a NATURAL V1.2 application to a NATURAL 2 environment is simply a matter of making the NATURAL V1.2 object modules accessible to a NATURAL 2 nucleus. To make the object modules accessible, use one of the 3 methods listed below:

Method 1: Use SYSMAIN to move/copy the object modules to the NATURAL 2 system file.

Method 2: Use ULDOBJN to unload the object modules and then use the NATURAL 2 INPL to load them to the NATURAL 2 system file.

Method 3: Use the NATURAL parameter fuser under NATURAL 2 and point it to the NATURAL V1.2 system file.

This is the preferred approach to the implementation of NATURAL V1.2 applications to NATURAL 2, but it can't always be done this simply.

Section 4: The Conversion Process

The implementation of a NATURAL V1.2 application that meets either one or both of the criteria presented in Section 2 should proceed with the following conversion steps:

Step 1: Move/copy both source and object code of the entire application to the NATURAL 2 environment. The easiest way to do this is to use SYSMAIN.

Step 2: Answer the following questions:

- a. Does the source program being modified/"run" reference external maps? If so, perform Step 3.
- b. Does the source program being modified/"run" reference global variables? If so, perform Steps 4 and 5.

If you answered "no" to both of these questions, then just stow the program under NAT2.

Step 3: Converting Maps

- a. Identify any other programs that use the external map(s).
- b. Edit the map(s) using the NATURAL 2 map editor. Make any changes necessary as a result of the modification to the program.

c. Stow each map in the NATURAL 2 map editor.

d. Stow each program that references the map(s).

NOTE: When stowing the V1.2 programs in the NATURAL 2 environment, you may get errors. There has been some code tightening done—meaning that code which was allowed in V1.2 may not be allowed in NATURAL 2.

Step 4: Converting Programs

a. Identify the program(s) which define the global variables.

NOTE: Only those programs which define the globals need to be converted.

b. Enter the global data area editor and enter the command "CREATE GLOBALS PROGRAM", where program is the name of the program that defines the globals. The wild card notation is supported to allow a specified set of programs to be converted or to select the entire library. This function requires the program(s) in object form.

NOTE: When you perform this step of the conversion, NATURAL will automatically name the GDA COMMON.

c. Make any required changes to the GDA COMMON created in the previous step. If any of the globals are redefined in the source program(s) being converted, then the redefinition must be done in the GDA. Stow the resulting GDA.

NOTE: NATURAL has already named the GDA COMMON for you.

d. Create the following program and stow it as ACOMMON. Failure to do so will result in the GDA not getting initialized. This program will be invoked whenever you log onto the library, and it will initialize the GDA COMMON.

```
DEFINE DATA GLOBAL USING  
COMMON  
END-DEFINE  
END
```

NOTE: ACOMMON does not have to be included in each program.

e. If the program being converted references an external map(s), then you must also perform Step 3. After completing Step 3, stow the program(s) or save the program(s) that are invoked with the "run" command.

continued on page 8

New Options for Preventing Duplicate User ID with NATURAL 2 Security

Lisa Crispin
Customer Service Division

Users of NATURAL SECURITY V1.2 may recognize one or more of these error messages: NAT8048, NAT3048, or "NAT4000 logon open ADABAS response: 48." These messages all signify that a duplicate User ID is active in ADABAS, and they're essential for users whose applications need access to restart data in ADABAS.

For applications which do not need restart data, however, these messages are meaningless to users. The error can be trapped in batch with an error routine if restart data is not used. Many users also want a way to prevent the error message from displaying online, when restart data is not used.

NATURAL 2 SECURITY comes to the rescue with some new options which administrators can use to prevent a duplicate User ID from occurring. User confusion is

minimized and restart data, if used, is protected.

Duplicate User ID in ADABAS and Restart Data

Restart or ET data is data written with the END TRANSACTION statement to the ADABAS checkpoint file. This data can be read in NATURAL with a GET TRANSACTION DATA statement, and can be used by applications to keep track of what processing has been done—especially in the case of an abend and subsequent restart of an application.

If a user wishes to write restart (ET) data to the ADABAS checkpoint file, NATURAL must do an OP (open) to ADABAS with a restart (external) User ID in the Additions 1 field of the control block (see page 227 of the ADABAS Command Reference Manual).

When an ADABAS OP command is issued with a restart User ID,

ADABAS checks to see if a User Queue Element (UQE) is already present with the same restart User ID. If one is present, a new UQE is created without a restart User ID. Without a restart User ID, no restart data can be read from or written to the checkpoint file. When a duplicate User ID is detected by ADABAS, it checks an activity timer. Depending on the value of the timer, either an RSP048 or RSP009 is issued to the new session.

If an RSP048 is issued, the new session cannot access or write restart data. If an RSP009 is received, the existing user is backed out, so neither UQE has a restart User ID. If the new session reissues the OP following the RSP009, a new UQE is created with the restart User ID so the new session, but not the old session, can access/write restart data.

continued on page 6

Programmed Programming Success

The ability to effectively manage information within a company is important to any business. But it is critical to a company that continually operates on deadlines. That is why "Programming Business Success" has a different meaning for National Public Radio (NPR), a non-profit membership organization and program producer located in Washington, D.C. Its role is to provide quality news, cultural and entertainment programming and support services to a rapidly growing over 300 member association of non-commercial radio stations across the United States.

Most local radio broadcasting in the competitive American market is provided by stations affiliated with the three major commercial communications networks, ABC, CBS and NBC, or by small independent stations.

The NPR network, on the other hand, is non-commercial. Unlike commercial radio stations sup-

ported by selling advertising, local public radio stations are funded primarily by their audiences, with additional support from government, private industry, educational institutions, and businesses.

To qualify for NPR membership, non-commercial stations must meet technical, financial and staffing criteria. Member stations pay dues which entitle them to use all NPR programming and related services.

In addition, NPR, the first full-time multi-channel radio network to transmit programming via satellite, distributes thousands of hours of programming from a variety of sources, including international broadcasting organizations such as the British Broadcasting Corporation.

While National Public Radio had no trouble managing its information, a key ingredient—effectiveness—was missing. NPR's Computer Information Services (CIS)

department recognized this fact and, two years ago, began a hardware and software overhaul that is now paying off.

This overhaul meant implementing new items such as Digital's VAX computer series and, on the software side, Software AG's ADABAS and NATURAL.

John Frederickson, Data Base Administrator with NPR's CIS department, described the system's organization prior to its renovation: "Information management within the company used to be a laissez-faire situation. Each department was responsible for its own equipment needs. Over the years a hodgepodge of equipment and software applications evolved." As a result, the equipment used in NPR's five divisions ranged from DEC PDP-11's to Apple II's.

This computer configuration was not the ideal starting point for the

continued on page 12

User ID

continued from page 6

The following chart illustrates the possible scenarios when an ADABAS OP with restart User ID is issued by NATURAL, and a UQE with the same restart User ID already exists:

Time Since Last Activity (existing UQE)	Response Code to New Session	Existing UQE	New UQE	Read/Write Restart Data?
< 1 minute	RSP048	Still Active Has Restart User ID	No Restart User ID	Existing Session
> 1 minute	RSP009	Backed Out: No Restart User ID	No Restart User ID	Neither Session

NATURAL's Action based on the response code received is as follows:

ADABAS RSP Code	NATURAL Error Message to NAT user	Action by NATURAL	Access/Write Restart Data?
RSP048	NAT3048/NAT8048/ duplicate user msg	Continue if User Presses ENTER	No
RSP009	None—NATURAL traps the RSP009	Reissue the OP w/restart User ID	Yes

For details on timeout and duplicate User ID processing, please refer to:

- Appendix B of ADABAS Messages and Codes manual
- ADABAS Internals manual, pg. 41
- ADABAS Commands Reference manual, pg. 221
- ADABAS TP Programmer's Guide, pgs. 14.1-19
- Timeout Frequently Asked Questions
- NATURAL SM06 release documentation

NATURAL SECURITY V1.2 and Duplicate User ID

In V1.2, NATURAL SECURITY always uses a restart User ID on the OP. The restart User ID is the same as the security logon User ID (refer to "The ADABAS User ID and NATURAL SECURITY" by Ed Barrow in the Spring 1987 issue of Connections for further details).

If a second session is started with the same security User ID, an RSP048 or RSP009 (see chart) results. An RSP048 may be trapped with an error routine in batch. Online, it will cause a warning message which can be ignored if the user is not using restart data. An RSP009 is intercepted by NATURAL, which will reissue the OP command.

NATURAL SECURITY V2.1 and Duplicate User ID

Version 2 of NATURAL SECURITY provides some new ways to prevent a duplicate User ID condition from occurring. The administrator can now specify whether or not restart data will be used in a particular application. The application profiles determine whether or not NATURAL issues an OP with a restart User ID. If restart data is not used, a duplicate User ID condition will not occur, so an RSP048 will not be returned. If restart data is used, the administrator can provide for unique restart User IDs. An RSP048 will then occur only if a user is logged on to the same application and the same device type (video, batch, PC, color, TTY) in more than one concurrent session.

In V2.1, the NATURAL system variable *ETID is used for the

ADABAS restart User ID. The value of *ETID is determined by the security definitions for the user and the application. Also, there is a RESTART parameter on the application profile (or user profile for private libraries) that determines whether or not restart data can be written in the application.

To Allow Writing Restart Data in a V2 Application

In order to issue an OP with a restart User ID, the security profile for the application and user must be set up as follows:

1. The user definition must contain a non-blank ETID parameter. The value of ETID can be specified in several ways:
 - a. Default (logon User ID)
 - b. Hard coded value other than default
 - c. Generated (see next section for how to generate ETID)
 - d. NATPARM ETID passed dynamically at logon time; this will override ETID in the security profile.
2. The RESTART parameter on the application profile (or user profile for private libraries) must be "Y."

The value of *ETID comes from the ETID parameter in the security profile for the User ID, NATPARM, or dynamic parm override. If the RESTART parameter in the application profile (or user profile for private libraries) is "N," *ETID is set to blank during logon, and NATURAL will not issue an OP with a restart User ID. If RESTART is "Y" and *ETID is non-blank, NATURAL will issue an OP with a restart User ID equal to the value in *ETID. If the session has a restart User ID, the user can write and read restart data to and from the checkpoint file. *ETID can be displayed in a NATURAL program to check what value is being used for the application.

NOTE: SM02 of NSC V2.1 does not allow a blank ETID on a user record; however, SM03 allows blanks. Make sure ETID is provided either from the security profile or NATPARM if restart data will be used.

Preventing Duplicate User ID if Restart Data is Used

The new capability to generate unique ETIDs for each application/user/device type combination in

NATURAL 2 SECURITY can be used to prevent duplicate User ID problems.

To make NATURAL SECURITY generate the ETID, enter "?" in the ETID field on the user profile, or put a "Y" for "Generate ETID" on the Modify General Options screen of Security Administrator Services. When the user logs on to an application, NATURAL SECURITY will use the following algorithm to determine ETID:

ETID is DUUUUAAA where: D is device type (i.e., B for Batch), UUUU is a unique identifier for the User ID, and AAA is a unique identifier for the application. For more details, see the NATURAL 2 SECURITY Manual, pgs. 6-18.

A generated ETID is unique to the application, User ID, and device. If the same User ID logs on to two separate applications or two different device types concurrently, each session will have a unique restart User ID allowing each session to read and to write restart data. Logging on to the same application on the same device type concurrently will result in a duplicate User ID condition (RSP048 or RSP009).

NOTE: For private libraries, in SM02 of NSC 2.1, ETID is the same as the User ID; in SM03, this is changed so that ETID is DUUUU (the last three characters are blank).

The security administrator has other options to prevent potential loss of restart data due to a duplicate User ID condition. For example, batch jobs can be set up to use auto logon, with a different job name for each job. All batch jobs can be run in the same initiator so that two jobs cannot run concurrently.

To make sure that restart data is always available, define the application with RESTART = Y and a unique ETID, and make sure online users do not ignore duplicate User ID warnings.

Preventing Duplicate User ID if No Restart Data Is Used

If restart data is not being used, an RSP048 can be avoided by setting the RESTART parm to "N" in the application profile (or user profile, for private libraries). ETID will be set to blanks at logon time and NATURAL will not issue an OP with a restart User ID. Setting ETID to blanks will accomplish the same result.

Duplicate User ID Scenarios

When a NATURAL session is in progress, there is no way to tell whether ET (restart) data is being written to the checkpoint file. A NATURAL program may appear to write restart data and read it back in immediately even if ETID is blank and RESTART = N. However, the program is actually writing restart data to and reading it from the ADABAS buffer, and the data will not be stored on the ADABAS checkpoint file. Administrators and application developers have to set up the application and the production environment to ensure that restart data, when used, is always available.

When planning to implement a new application, consider all the possible scenarios where a duplicate User ID situation could occur. Define the application profile with appropriate values for the RESTART and ETID parms. Evaluate the TP and batch environment to identify and prevent possible problems. Consider the following scenarios where a duplicate restart ID in ADABAS can occur (assume all applications are defined with RESTART = Y and that ETID is non-blank):

1. A batch application abends, leaving a UQE with a restart User ID; the application is re-submitted after more than one minute.
2. The same NATURAL SECURITY User ID logs onto the same application from two separate video terminals concurrently.
3. A NATURAL SECURITY user abandons an online session without ending it normally with a FIN or TERMINATE, and logs onto the same application in a new session after more than one minute.
4. An application runs in batch and online concurrently.
5. Two applications using the same NATURAL SECURITY User ID run in batch concurrently.

Using the charts and information on NATURAL 2 SECURITY's RESTART and ETID parms above, evaluate each scenario. Different results can occur, depending on the value of ETID.

In Scenario 4, for example, if NATURAL 2 SECURITY generates the ETID, the ETID will be unique for online and batch, no duplicate User ID will be found, and restart data will be accessible to both applications. In Scenario 2, however, even if the ETID is generated, it will be the same for both sessions; the second User ID to logon will receive an RSP048 and will not have access to restart data.

In Scenario 3, the original session will no longer have access to restart data even if a generated ETID is used, since the same User ID is logged on to the same device type in the same application.

In Scenario 1, where the first batch job abended, the second job will have access to the restart data. Scenario 5 is not as clear-cut. If the jobs use unique ETIDs, each will have access to its own restart data.

There are too many possibilities to cover here; however, the moral of these scenarios is that administrators must carefully plan applications that use restart data. For example, each user of an application that uses restart data must have a unique NATURAL SECURITY User ID, or the ETID (thus the restart User ID) cannot be unique for each user.

NATURAL 2 SECURITY provides new tools to manage the use of restart User ID in applications. Use these tools to minimize user confusion by eliminating inappropriate duplicate User ID error messages, and to maximize the benefits of restart data by ensuring access to it when needed.

NATURAL CONSTRUCT

For more information please contact your local Software AG representative or call:

1-800-843-9534

Conversion

continued from page 4

NOTE: When stowing the program(s), you may get errors. There has been code tightening—meaning that certain code which was allowed in NATURAL V1.2 may not be allowed in the NATURAL 2 environment.

Step 5: Completion of the Conversion Process

a. Logon to the application in NATURAL 2. This will cause the GDA COMMON to be initialized. Any NATURAL V1.2 program that is executed will access the global variables in the same method as used in NATURAL V1.2, and any program that is “run” or has been restowed in NATURAL 2 will access the global variables using the GDA COMMON. NATURAL 2 will automatically synchronize the V1.2 global variables and the GDA COMMON, so that no data is lost when switching between a NATURAL V1.2 program that hasn’t been converted and a NATURAL V1.2 program that has been converted to NATURAL 2.

b. Begin the execution of the application.

The following is a NATURAL V1.2 application which contains five programs and two maps. This application will be used as an example to walk you through the conversion process.

MAINMENU PROGRAM:

This program defines all the global variables and fetches and runs programs.

ADDPGM PROGRAM:

This program is invoked by a FETCH command from the MAINMENU. It does not use global variables.

DELPGM PROGRAM:

Same as the ADDPGM program.

UPDPGM PROGRAM:

Same as the ADDPGM program.

REPORT PROGRAM:

This program uses dynamic global variables and is invoked by a “run” command from the MAINMENU.

MAINMAP MAP:

This map is used by the MAINMENU program.

THEMAP MAP:

This map is used by the ADDPGM, DELPGM, and UPDPGM programs.

```
***** MAINMENU *****
0010 RESET #SELECTION (A1) +NAME (A20) #NUMBER (N8)
0020     +VAR (A22)
0030 INPUT USING MAP 'MAINMAP' #SELECTION +NAME #NUMBER
0040 IF #SELECTION = '.'
0050     STOP
0060 FIND NUMBER CONVERT WITH PERSONNEL-NUMBER = #NUMBER
0070 IF *NUMBER = 0
0080     DO
0090 IF #SELECTION = 'A'
0100     FETCH 'ADDPGM' #NUMBER
0110 ELSE
0120 IF #SELECTION = 'D'
0130     REINPUT 'THAT EMPLOYEE DOES NOT EXIST' MARK 1
0140 ELSE
0150 IF #SELECTION = 'U'
0160     REINPUT 'THAT EMPLOYEE DOES NOT EXIST' MARK 1
0170 ELSE
0180 IF #SELECTION = 'R'
0190     REINPUT 'THAT EMPLOYEE DOES NOT EXIST' MARK 1
0200 DOEND
0210 ELSE
0220     DO
0230 IF #SELECTION = 'A'
0240     REINPUT 'THAT EMPLOYEE ALREADY EXISTS' MARK 1
0250 ELSE
0260 IF #SELECTION = 'D'
0270     FETCH 'DELPGM' #NUMBER
0280 ELSE
0290 IF #SELECTION = 'U'
0300     FETCH 'UPDPGM' #NUMBER
0310 ELSE
0320 IF #SELECTION = 'R'
0330     DO COMPRESS '''' +NAME '''' INTO +VAR LEAVING NO SPACE
0340     RUN 'REPORT'
0350     DOEND
0360 DOEND
0370 END

***** ADDPGM *****
0010 INPUT #NUMBER (N8)
0020 MOVE #NUMBER TO #PERSON (N8)
0030 INPUT USING MAP 'THEMAP' #PERSON #FIRST-NAME (A15) #NAME (A20)
0040     #CITY (A15) #ZIP (N5) #JOB (A20)
0050 STORE CONVERT PERSONNEL-NUMBER = #PERSON NAME = #NAME
0060     FIRST-NAME = #FIRST-NAME CITY = #CITY ZIP = #ZIP JOB = #JOB
0070 END TRANSACTION
0080 FETCH 'MAINMENU'
0090 END

***** DELPGM *****
0010 INPUT #NUMBER (N8)
0020 FIND CONVERT WITH PERSONNEL-NUMBER = #NUMBER
0030 INPUT USING MAP 'THEMAP' PERSONNEL-NUMBER FIRST-NAME NAME
0040     CITY ZIP JOB
0050 DELETE
0060 END TRANSACTION
0070 FETCH 'MAINMENU'
0080 END

***** UPDPGM *****
0010 INPUT #NUMBER (N8)
0020 FIND CONVERT WITH PERSONNEL-NUMBER = #NUMBER
0030 INPUT USING MAP 'THEMAP' PERSONNEL-NUMBER FIRST-NAME NAME CITY
0040     ZIP JOB
0050 UPDATE SAME RECORD
0060 END TRANSACTION
0070 FETCH 'MAINMENU'
0080 END

***** REPORT *****
0010 FIND CONVERT WITH NAME = &VAR
0020     DISPLAY PERSONNEL-NUMBER NAME JOB SALARY
0030 FETCH 'MAINMENU'
0040 END
```

This figure shows the source code for the programs.

INFORMATION REQUEST CARD

YES, Please send me additional information on:

- | | |
|--|--|
| <input type="checkbox"/> NATURAL CONSTRUCT | <input type="checkbox"/> Please Include me on the Customer Training Mailing List |
| <input type="checkbox"/> VAX Products | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> NET-PASS Version 2 | _____ |
| <input type="checkbox"/> NATURAL ELITE Computer Based Training | _____ |

NAME _____

TITLE _____

COMPANY NAME _____ CUSTOMER # _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

TELEPHONE _____



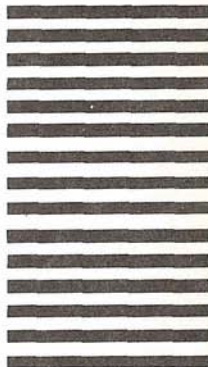
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 3115 RESTON, VA

Postage Will Be Paid by Addressee

Software AG
11800 Sunrise Valley Drive
Reston, VA 22091
Attn: Tim Fields



We will present 2 scenarios as examples of the conversion process.

Scenario 1

If there are no source changes necessary to any of the programs or maps, then use the following steps:

1. Copy/move the application to the NATURAL 2 ENVIRONMENT.
2. Using Step 2, we answer "no" to question 2a since the program REPORT, which is invoked with the RUN command, does not reference an external map. We answer "yes" to question 2b since the program REPORT does reference global variables. We now proceed to Step 4.
3. Using Step 4a, we identify that the MAINMENU defines the global variables.
4. Using Step 4b, we go into the global data area editor and enter "CREATE GLOBALS MAINMENU". Refer to Figures 1A and 1B.
5. Using Step 4c, we see that there are no changes necessary to the GDA COMMON, so we stow the GDA COMMON.
6. Using Step 4d, we create and stow the program ACOMMON.
7. Using Step 4e, we see that MAINMENU uses an external map MAINMAP, so we back up to Step 3 to stow the map and check for other programs that may reference the map MAINMAP. Now we may stow the program MAINMENU.
8. At this point, we log off and then log back on so that the GDA COMMON can be initialized by the program ACOMMON.
9. We can now proceed to execute the application.

Scenario 2

We have decided that we want to make a source change to the program ADDPGM. The following steps are for the conversion of the program ADDPGM.

1. Using Step 2, we answer "yes" to question 2a since the program ADDPGM does reference the external map THEMAP. We answer "no" to question 2b since the program ADDPGM does not reference global variables. We now proceed to Step 3.

2. Using Step 3a, we identify that programs DELPGM and UPDPMG also use the map THEMAP.
3. Using Step 3b, we edit the map THEMAP and make any necessary changes.
4. Using Step 3c, we stow the map in the NATURAL 2 map editor.
5. Using Step 3d, we stow the programs ADDPGM, DELPGM, and UPDPMG.
6. We can now proceed with the rest of the conversion as laid out in Scenario 1.

```

***** THEMAP *****
?THEMAP

PERSONNEL ID :99999999
FIRST NAME >XXXXXXXXXXXXXXXXXX
LAST NAME >XXXXXXXXXXXXXXXXXXXXX
CITY >XXXXXXXXXXXXXXXXXXXXX
ZIP >99999
JOB TITLE >XXXXXXXXXXXXXXXXXXXXX

***** MAINMAP *****
?MAIN?MENU

OPTIONAL = ?O
REQUIRED = ?R

SELECT THE FUNCTION THAT YOU WISH TO PERFORM.

CODE      FUNCTION                                NAME      NUMBER
-----
?A      ADD EMPLOYEES                                R
?D      DELETE EMPLOYEES                             R
?U      UPDATE EMPLOYEE INFO                         R
?R      GENERATE AN EMPLOYEE REPORT                 R
?.      TERMINATE

SELECTION>X
NAME>XXXXXXXXXXXXXXXXXXXXX
NUMBER>99999999

```

This figure shows the layouts of the maps.

```

Figure 1A:
LIBRARY: CONVERT      NAME: GLOBAL                      DBID: 200 FNR: 1
COMMAND: CREATE GLOBALS MAINMENU                       > +
I T L NAME          F  LENG  INDEX/INIT/EM/NAME/COMMENT
- - - - - ALL - - - - -

```

```

Figure 1B:
SYSGDA 0055: GLOBAL DATA AREA CREATED.
17:08:37          ***** EDIT DATA *****                      88-04-07
LIBRARY: CONVERT      NAME: COMMON      GLOBAL          DBID: 200 FNR: 1
COMMAND:                                                       > +
I T L NAME          F  LENG  INDEX/INIT/EM/NAME/COMMENT
- - - - - ALL - - - - -
1 +VAR              A    22
1 +NAME              A    20

```

Figures 1A and 1B.

NATURAL CONSTRUCT

continued from page 1

Developing a program using NATURAL CONSTRUCT is a simple process:

1. The application developer uses standard NATURAL facilities to define views, paint maps, and create data areas as needed in the application.
2. The developer invokes NATURAL CONSTRUCT and selects the model that most closely resembles the program he/she wants to build.
3. NATURAL CONSTRUCT prompts the developer for values that resolve the open characteristics defined in the program model, then generates the program.

Each time you generate a program, NATURAL CONSTRUCT saves the parameter values you specify, so you can regenerate without having to respecify values for parameters you wish to leave unchanged. By supplying NATURAL CONSTRUCT with different values at generation time, an unlimited variety of programs can be generated from each model.

Standard Models

The NATURAL CONSTRUCT package includes models that are used as the basis for generating three kinds of interactive programs: file maintenance, browse, and menu.

Each model incorporates the design expertise of experienced NATURAL system designers. The programs generated from these models are highly functional and efficient, and encourage effective coding practices for developers who are new to NATURAL. Since all generated programs observe NATURAL 2 structured mode conventions, NATURAL CONSTRUCT offers a way to get up to speed quickly with new NATURAL 2 features.

The standard models provided with NATURAL CONSTRUCT include an impressive array of features:

- The file maintenance model supports updates to JOINed files, use of external maps, use of global data, incorporation of validation and referential integrity rules,

use of ADABAS MU fields and PE groups, and optional audit trail generation.

- The browse model offers scrolling up, down, left, and right, under the control of both commands and function keys.
- The menu model offers either external or generated maps, plus selection using either function keys or direct commands.

Adapting to Specific Needs

The design of NATURAL CONSTRUCT takes into account the fact that no finite set of application models can accommodate the development requirements of every situation. Sometimes application features are needed that are not supported by any NATURAL CONSTRUCT model. In such situations, the developer has three choices: modify an existing model, create a new model, or modify the generated output.

Modifying the generated output is appropriate when changes are desired for a small percentage of programs generated from a given model. In these cases, the developer simply generates a program using NATURAL CONSTRUCT, then invokes the NATURAL program editor to make the desired modifications. This process is made simpler by the fact that NATURAL CONSTRUCT generates structured, commented source code with a reproducible structure that is easy to understand and modify. And because the generated code is NATURAL, the amount of source code one must deal with is a small fraction of functionally equivalent output from a COBOL generator.

When a variation of an existing program model is needed for a large number of required programs, changing the model becomes a more effective choice than changing the generated output. Among the reasons for changing a model are:

- to enforce design and coding standards
- to enforce user interface standards
- to add calls to shop-standard routines (e.g., for security)

Changing a model can also be an effective way of leveraging development effort when applying mass changes, since changes are automatically incorporated in pro-

grams generated from the changed model. Because NATURAL CONSTRUCT models are predominately NATURAL source code, most changes can be made by NATURAL developers with little additional training.

For situations in which no existing model adequately represents the function of a large class of similar programs, NATURAL CONSTRUCT gives you the tools to develop your own models. The mechanisms available for defining the open characteristics of user-defined models include simple string substitution, conditional inclusion of code, and exits to retrieve NATURAL code from external sources via user-written subprograms. By combining these mechanisms with standard NATURAL statements, you can define models for new classes of programs that can be generated by NATURAL CONSTRUCT.

HELP Text Management

Prototyping is just one of the ways NATURAL CONSTRUCT facilitates end user involvement in development. It also offers a comprehensive, yet easy-to-use system for creating and maintaining HELP documents that is suitable for use by end users. HELP text documents can be defined for systems, programs within systems, and even fields within program maps. The HELP text maintenance system uses the NATURAL 2 editor for text entry and editing, specifying page headings, and defining page breaks. During program execution, HELP text is presented in a window, and can be viewed sequentially, or randomly by page.

Advantages of NATURAL Foundation

NATURAL CONSTRUCT is itself written in NATURAL, and runs in all supported NATURAL environments without special prerequisites. NATURAL CONSTRUCT makes use of the NATURAL map editor, program editor, and data area editors, creating an integrated extension to NATURAL's interactive development environment. By generating NATURAL source code, NATURAL CONSTRUCT enables you to make use of your existing NATURAL test environment. And because the NATURAL code generated is environment-independent, NATURAL CONSTRUCT does not concern itself with environment-

specific details. Generation becomes faster, easier, more flexible, and more reliable than with COBOL-based alternatives.

Foundation for the Future

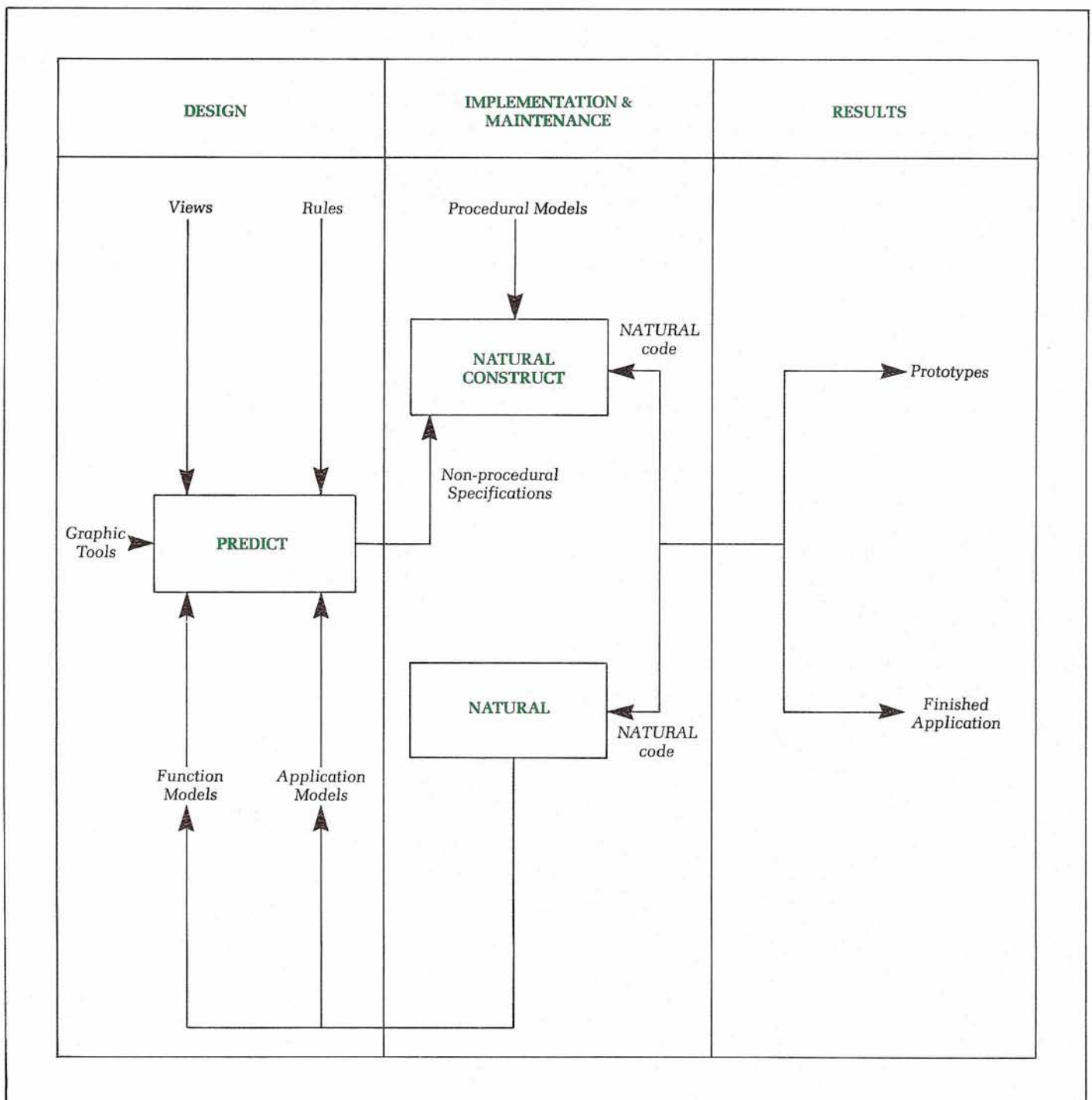
NATURAL CONSTRUCT Version 2.1 represents the first of several stages planned for the NATURAL Engineering Series. Plans for upcoming releases of NATURAL CONSTRUCT include providing access to generator facilities from the NATURAL editor, offering new and extended application models, and extending PREDICT support to

store generation parameters. Other components planned for the NATURAL Engineering Series include PREDICT CASE, a mainframe CASE repository and specification tool for planning, analysis, and design activities.

NATURAL CONSTRUCT Version 1.1 runs in VAX environments under NATURAL Version 1.3, with prices ranging from \$3,130 to \$25,000, depending on processor size. NATURAL CONSTRUCT Version 2.1 for IBM environments using NATURAL 2 will be available

in June, with prices ranging from \$7,000 for group 10 processors running VM and VSE, to \$45,000 for group 40 processors running MVS.

A 10% discount on IBM prices will be offered for orders placed within the first 90 days of release. For more information, please contact your local Software AG representative or call 1-800-843-9534. Also, you can refer to the enclosed information card to send for more information.



NATURAL CONSTRUCT
IN THE SOFTWARE DEVELOPMENT LIFE CYCLE

CIS department, which had the job of infusing a smooth, readily-tapped computer information system into the company. So, much of the (outdated) computer equipment was sold off and the company has now moved to DEC VAXes, with a few exceptions. Frederickson said that "... in choosing a new system, management wanted state-of-the-art equipment. As a result, Digital Equipment Corporation's VAX processors were selected."

Today, NPR is operating four VAX 8250 configured as a VAX cluster. Data is stored on eight RA81 disk drives and this configuration supports a network of 300 terminals.

As for software, Frederickson said, "We needed something that was fast, that didn't eat the resources of the computer. We needed to implement elaborate data base management functions and we needed to be able to quickly store and retrieve information." After investigating numerous products, Frederickson chose ADABAS and NATURAL. Both products are marketed locally by Software AG of North America, based in Reston, Virginia.

As Frederickson said, "This software stood out for several reasons. The products permitted the creation of a large data base which did not hog the VAX's memory; they allowed the CIS department to tailor programs to specific departmental needs; and they proved easy to use." Elaborating on the last points, he went on: "We needed to work with a language we had or have a language that would be easy to use and learn. In fact, NATURAL, being a fourth-generation language, allowed us to produce the applications we wanted."

NPR wanted to have all of these features in its computer systems because as a non-profit business it had special requirements. To meet its unique needs, NPR had to create a large data base containing the informational make-up of all of its customers, along with more esoteric systems such as one which predicts when the sun will interfere with satellite transmissions.

Through its five divisions—Distribution, Representation, News and

Information Programming, Cultural Programming and Program Services, and Administration—NPR offers an extensive array of services, ranging from managing an innovative satellite system to furnishing training and promotional assistance to its member stations.

such as CIS, fund raising and financial management.

Obviously, the five divisions have different automation needs which, according to Frederickson, are handled by special applications created with NATURAL. However, their common use of customer informa-



John Frederickson, Data Base Administrator for NPR

The Distribution Division manages all technical and operational aspects of the satellite interconnection system, and administers related services including scheduling, facilities coordination and billing.

The News and Information Division produces daily news magazines such as "All Things Considered" and "Morning Edition," which examine a wide range of important national and international issues beyond the headlines. National Public Radio's arts and performance programming, provided by the Cultural Programming and Program Services Division, takes listeners to the great concert halls of the world, to crowded jazz clubs and lively folk festivals. It also features innovative radio drama and cultural documentaries, including the daily arts program, "Performance Today," which uses ADABAS and NATURAL applications as production tools.

Representation is responsible for the development and implementation of policies which support public radio. And the Administrative Division offers institutional support

tion was the thread he used to tie them all together.

A customer information data base was created using ADABAS. The data base contains customer addresses, contact names for varied purposes and general information on the station, such as its signal coverage and audience. The status of member stations and other customers, including independent radio show producers and radio networks, is also contained in the data base.

This information can be tapped by the various departments. For instance, when the Distribution Division's equipment department or satellite depot has to send a repaired piece of equipment to a customer, the name and shipping address of that customer can be pulled up as well as the technical contact's name. Similarly, when the Distribution Division's marketing department receives a request for a program transmission, marketing can check the customer data base to ensure an "authorized requestor" is making the request.

NPR's special applications also tie into this data base for customer information.

SOAP is one of these applications. "It's our sun outage prediction system," explained Frederickson. "Twice a year the sun disrupts our member stations' satellite reception. Although it only lasts a few minutes, it results in a broadcast blackout."

As a result, NPR needs to know when these outages will occur so a transmission is not scheduled during that time period. The geographic coordinates of the stations' satellite ground stations or antennas are stored in the customer information data base. This information is input into the SOAP application, which then uses the geographic coordinates to compute sun spot outages for each station.

Another specialized application was built for the Representation Division's national affairs department. In effect, the program helps speed up the process of tracking support for public broadcasting.

Frederickson noted that NPR keeps track of legislation pending in Congress. When legislation comes up in Congress that affects public radio, NPR provides reports containing this information to its member radio stations. These reports enable members to focus their lobbying efforts. The system provides users with a list of committees that control or affect the legislation, and the names of committee members as well as their districts.

Another system was built for NPR's library. "Whenever a show like 'All Things Considered' goes on the air, our program librarians listen. They itemize and classify each segment of material that went on the air, making note of the reporter's name, people involved, the 'slug' (a one- or two-word story title), and the nature of the piece. For instance, you might look up each story about science fiction author Ray Bradbury or look through all the pieces with Nicaragua and Ronald Reagan in them," Frederickson said.

Other applications which NPR has developed with ADABAS and NATURAL include:

- Inventory Control/Fixed Asset Accounting.
- Purchasing
- Contracts
- Radio Program Production/Distribution

NPR has developed nearly twenty-five systems with ADABAS and NATURAL and adds, on average, one completely new system each month—with a total staff of only eleven in the CIS department. These applications access a total of 115 files in four data bases.

As Frederickson stated: "We have been able to manage information more efficiently through the use of good software tools." He defined a good tool as one which "increases productivity, increases the quality of the product you deliver, increases accountability, and reduces operating costs."

"We've achieved this. We've increased accountability because we can track costs accurately. We've increased productivity because of the rate at which we can generate reports and build systems. And ultimately, we should reduce operating costs because we've created global resources instead of having each department doing their own data processing on different equipment." "Over the last two

years," Frederickson continued, "we have produced one new application system a month with ADABAS and NATURAL. Based on new Software AG product announcements, we can foresee accelerating that rate of development even further."

"I'm fortunate to be working within a management structure which allows the implementation of state-of-the-art technologies," Frederickson added. "I can say unequivocally that we would not have been able to deliver twenty-two systems in two years without a fourth-generation technology. During the last five years, the computer department has only added one new slot to its staff."

To ensure its continuing success in radio program distribution, National Public Radio will continue to search for the most cost-effective technical solutions. An integral part of this approach will be the continued use of innovative information management tools from Software AG.

Human Services Solutions: When the Best Meets the Best

Paul F. Peterson
Customer Service Division

What happens when you combine the best system support software on the market with the best social services system in existence?

The answer is Human Services Solutions, a new department within Software AG's Customer Service Division. The purpose of HSS is to provide state governments with optimum human service system solutions.

The first product HSS will take on is the ACCESS system, a social welfare administration system developed by the State of Vermont. Many people think this is the finest welfare administration system in the country, and we agree. The first task of HSS will be to review ACCESS, convert it to NATURAL 2, and make it even better.

Working for me are Jennifer Trombley and Jill Paul. Jennifer is the former Director of Computer Services with the Vermont Department of Social Welfare. Jill worked with Mathematica Policy Research early in the development stages of the project and later worked for the Department of Social Welfare. She also worked with the Income Maintenance Project at Stanford Research Institute.

In the future, Human Services Solutions will use other public domain human service systems. Our intent always will be to identify the best of the existing systems and then make them even better. For further information, please call HSS at 1-800-843-9534.

USER'S GROUP NEWS

NATURAL 2 Conversion Experiences

Darrell Davenport

Co-chairman of the NATURAL tips and techniques SIG

Now that NATURAL 2 has been released for a while many sites have made plans for its place in their production environment. This means there is an enormous amount of attention on conversion at the moment. As most are aware by now, Software AG provides a lot of invaluable documentation on this topic. They have gone to great effort to make this as painless as possible. As a result, there are many ways to do the conversion and each has its own pros and cons. I have been asked to share my views and experiences on this subject. We have been working with NATURAL 2 as a beta site for over a year and we have consistently tried to make the best possible plan of attack on its implementation. We are currently converting our batch programs as we do maintenance on them, developing our new applications in NATURAL 2, and have converted a few online systems. The rest of this document outlines our plan of attack which can be used as a guideline.

First, stay with the recommendations of Software AG as much as possible. In other words, convert whole applications at once, build the GDA, and code the DEFINE DATA GLOBAL USING statement in each program as it is converted (if it uses global variables). We decided to leave the programs as close to the original as possible (not to use the arrays, subroutines etc.) until conversion is over. Then as maintenance is necessary, enhancements can occur. This speeds up the conversion and insures fewer problems during implementation. It also allows more time for the programming staff to absorb the new capabilities of NATURAL 2. As it turns out, the effort of building GDA's and tying them to the programs will have to be done eventually and since it is easy, why not get it over with up front?

Since many of our applications use NATURAL CONNECTION (the PC/mainframe link) we are not able to use the migration option (since NATURAL CONNECTION cannot yet run on NATURAL 2). Therefore, we are running NATURAL 1.2 SM07 and NATURAL 2.2 in parallel. Our single system image software is automatically able to direct each application to the proper environment without the user knowing it.

Conversion is fairly simple and can be done using a distributed, but unsupported Software AG utility:

NATCONV. This utility can add a DEFINE DATA section to a program(s) and take out the redundant global variable definitions. Then it re-stows the program. If you encounter difficulties or you don't use global variables, you may choose to re-stow the programs by hand. Either way is easy. Maps are simply stowed to be converted.

Some additional things we found to watch for when converting programs are listed below. These are as of SM02 and may be resolved in SM03. This is not a catch all list:

continued on page 15

ADABAS 5 Performance Update

Bob Becker

Manager, Data Base Administration
Foremost Insurance

At the Software AG International Conference in Miami, we spoke about the performance differences between ADABAS V5 and ADABAS V4. Since then, we have continued our benchmark executions and have determined a rather startling piece of information.

ADABAS 5 has a significant decrease in CPU utilization as the number of concurrent users increases. For example, running 1 user through ADABAS V5 and ADABAS V4 performing 5,000 read random commands, we find that there is a 22% increase in CPU utilization from ADABAS V4 to ADABAS V5. However, running 50 users with the same test criteria and same software parameter settings, we find a 37% decrease in CPU utilization from ADABAS V4 to ADABAS V5. It appears as though Version 5 has optimized its code for the environment which contains a higher number of concurrent users.

Even with 10 users concurrently active within ADABAS 5, we find a

significant decrease in CPU utilization over Version 4. Therefore, it would appear that on-line environments will be benefiting most from the Version 5 performance improvements, rather than the single user environments.

The ADABAS dump/restore facility has also been significantly improved with allowing multiple tape or cartridge drives to be utilized while dumping the entire database. We are capable of dumping an entire 25 single density 3380 database in 30 minutes of elapse time using five tape or cartridge drives. This is a very improved facility within the utility. It should allow many more installations the ability to dump an entire database on a daily basis. Of course, the dumping can occur while the database is being updated, which is the same facility that is presently available in ADABAS V4.

If you wish to discuss these performance improvements with me, please feel free to call me at Foremost Insurance Company—
(616) 956-2664.

ADABAS Product Representative Report

Bob Becker

Manager, Data Base Administration
Foremost Insurance

This is my first article in Software AG's Connections as the ADABAS Product Representative. My name is Bob Becker and I currently hold the position of Manager of Data Base Administration at Foremost Insurance in Grand Rapids, Michigan. We at Foremost are long-time users of Software AG products, having used ADABAS for the past 14 years, and NATURAL for the past 9 years.

This is a very interesting time for all ADABAS users because ADABAS 5 is close to a general distribution release. As many of you know, I have been testing ADABAS 5 since October, 1986. I think you will be very impressed with

ADABAS 5, particularly with the on-line services. ADABAS on-line services provides a high degree of interaction with ADABAS from the Data Base Administrator's perspective. You may be interested in reading about some of the performance highlights in the article entitled *ADABAS Version 5 Performance Update* which appears in this edition of Connections.

Since the International Conference in Miami, several personnel changes have occurred within the user community. Kerrie Meyler has taken the position as Southwest Regional Representative, replacing Larry Godec. Larry has become the Executive Committee Secretary. As a result of Kerrie's transfer, the DOS Special Interest Group position is

vacant. If you are a DOS user and would like additional information about becoming this very important Special Interest Group Chairperson, please contact either me at Foremost Insurance or Larry Jayne at Software AG.

Over the past few months, I have spoken with several of you about ADABAS issues, including performance topics and ADABAS change enhancements requests. If you have any ADABAS related issues, questions, or suggestions to improve the product, I would enjoy discussing them with you. It is only through our input to Software AG that we can improve upon the ADABAS features and product performance. Please contact me at Foremost Insurance Company—(616) 956-2664.

NATURAL 2

continued from page 14

1. NATURAL 2 will print in column 1 (NATURAL 1.2 always started in column 2). This may impact your microfiche jobs or if you have special characters in column 1 and your printer is looking for carriage control, your page spacing may be off.
2. AT TOP OF PAGE cannot be in REPEAT UNTIL loops (implied DO . . . DOEND). The same goes for WRITE TITLE and AT END OF PAGE etc.
3. IF . . . DO . . . ELSE must have the closing DOEND before the ELSE.
4. OBTAIN GROUP-WITH-MU-WITHIN-PE(1-n,1-n) will cause syntax error during compile if any of the elementary fields within the PE are not MU.
5. TERMINATE #COND-CODE, if inside of a READ WORK loop, or after a WRITE WORK FILE will not close the file, which causes a C03 abend. It also now reserves condition codes 1-31 for NATURAL messages. If you use those values, expect strange messages on otherwise normal looking output.
6. RESET *PAGE-NUMBER does not syntax check—use MOVE 0 TO *PAGE-NUMBER as a solution.
7. If your maps from NATURAL 1.2 have modified names for

- the fields (not IFIELD01 etc.) read the documentation on passing parms to maps for NATURAL 2. You may need to do some extra conversion effort.
8. At break with work files may work differently than you expect, especially if you are using system functions like "OLD(#VAR); (you will get an abend during compilation message). And PERFORM BREAK PROCESSING may cause the last element to print twice. (Put a STOP just before the END to fix this.) If you use AT BREAK with workfiles a lot, anticipate some extra time for conversion.
9. WRITE statements that use "/" for line feeds: if the "/" starts a new page you may or may not get correct title and header produced. And if the page size is hit exactly at the same time as the logical page ends, NATURAL may try to "window" your output and echo the page without the top header line.
10. Disallowed modules with SYSSEC (SM02) works differently and once a fetch is attempted, an error will not recover from NAT0963. You will need an error handler for the application to catch the messages now.
11. If you use startup modules (defined to security) be sure they transfer control to another program before they quit. If not,

then you must add a statement to blank the startup program name. The reason is that the startup module replaces the NEXT prompt and unless control is transferred or the startup is blanked, you will be in an endless loop. The way to blank the startup is: "MOVE" TO *STARTUP".

12. *DATJ; the format has changed slightly.

For those programmers used to the NATURAL 1.2 editor some commands have been changed:

The "P" command that used to split the editor screen and put a programs' source on the bottom half now purges the program's source from your library without warning.

If you are used to using "S" for scanning source, it now is the split screen command—"SC" is scan. SCAN will now search from the current line to the bottom, not from the top each time. However, you can stack editor commands to scan from the top if you wish (i.e. T,SC #VAR1). To continue the scan you must enter "SC=" (or push PF10 that is defined as "SC=")

You can now EXECUTE programs from the editor, but don't use the "EX" command to do it. "EX" means Erase from the top line to the line marked "X" in the source work area.

I hope these suggestions help you with your conversion and save you sometime.

The 8th Annual Israel Users' Group Conference

David Tobias
Bank Leumi Le-Israel B.M.

The 8th Annual Software AG Users' Group Conference in Israel was held in the Accadia Hotel, on December 3, 1987 with 300 attendees from more than 50 organizations.

The main topic of the day was the presentation "Data Processing in the 1990's" given by Mr. Peter Pagé, Vice President of Software AG, Darmstadt.

After lunch, Mr. Dan Givol, General Manager of the Local Authorities DP Centre, gave a presentation of distributed (Data Sharing) systems, based on ADABAS/NATURAL software and 9370 and VAX departmental computers. He pointed out the standardization and integration issues he is faced with in developing such systems.

The problem is that the distribution tools needed now, will be implemented sometime in the future, and he addressed a request for Software AG to supply these solutions as soon as possible.

The next session was given by Ms. Esther Levanon, DP Manager of the Israeli Stock Exchange. She spoke about a new online system that was developed with NATURAL 1.2 and ADABAS DBMS.

The system manages the trading of the most popular of the Israeli stocks, and a real-time communication sub-system to 27 outside organizations. This implementation was made on a recently installed IBM computer, with ADABAS/NATURAL, and with a programming team which did not have experience in NATURAL. It took only 7 months to develop the system, including system tests, until the first production day.

Mr. Hagai Sheffer, Ministry of Defense, shared his experiences in converting from NATURAL 1.2 to NATURAL 2. This was a straight conversion process without modifying programs to utilize the new features of Version 2.

The move to NATURAL 2 improved the response time of the system by a factor of 2: from 8200 transactions an hour with average response time of 3.44 sec, to 11,200

transactions with average time of 1.45 sec. He also pointed out the issues he faced in the conversion process and described an automatic conversion program that he wrote.

The last presentation was given by Mr. David Tobias and Mr. Dani Marom, Bank Leumi Le-Israel B.M. They spoke about implementation of ADAM file in Bank Leumi. The response time for 3 million records file was improved from 200 MS for a DBCALL to 68 MS. The efficiency of using this ADABAS access method, especially when there are

response time problems, was pointed out to the users.

They also discussed the ADAM file characteristics:

- High DE in the first field.
- Few random updates.
- No sequential processing.
- More disk space.

The meeting concluded with agreement that the Users' Group election forms would be distributed by mail.

NATURAL Elite Special Interest Group Started

Would you believe that there are currently over one hundred Software AG customer sites using NATURAL Elite? Well it surprised us too! So we thought that it would be to everyone's benefit to get some communications started among all of these sites. The best way to accomplish this task is to start a Special Interest Group for NATURAL Elite.

'We' are EG&G Florida, the Base Operations contractor for the Kennedy Space Center, and a firm believer in NATURAL Elite. We have been using the product for a little over a year now, and have found it to be a very valuable training tool. We currently have all of the courseware available that pertains to the Software AG products we use, and have used the Authoring Facility to create our own courses for specific applications.

At the Users' Conference in Miami last November we posted a request for names of those people interested in belonging to a SIG for NATURAL Elite. We received responses from 10 customer sites. Based on telephone conversations with the contacts at these sites, we determined there was sufficient interest in a SIG to start the ball rolling. Past information we received led us to believe that there were less than thirty or so sites using Elite, therefore, it was a real shocker to find out from Software AG that there are over one hundred.

This makes the task of organizing things a little harder, but it is encouraging to know that we can potentially have a much broader based SIG than originally thought.

The main purpose of this SIG is to foster communications among the entire user base of Elite, and between the group and Software AG. Problems, enhancement requests, and suggestions all have much more effect if the strength of a SIG is behind them. Let's work together for the mutual benefit of all.

Software AG supports the efforts of this group to serve as a focal point for communications between them and their user community, and they encourage the development of an active, involved SIG.

Many of you will soon be receiving our first newsletter, but we don't have anything close to a complete mailing list yet. So if you want to get involved, if you have any suggestions, or if you just want information about how others are using NATURAL Elite, please call or write. I can be reached at:

Anthony G. Cortese
EG&G Florida, Inc.
P.O. Box 21267
BOC-29
Kennedy Space Center, FL 32815
(305) 867-4042

Let's get a strong, well-organized group together. It will be well worth the time and effort for us all.

REGIONAL REPORTS

NEW ENGLAND REGION

Software AG and Users Talk About Experiences with NET-PASS

General Business

The New England Region SAG Users' Group Meeting was held on February 23, 1988 at M.I.T. in Boston.

The College and University Caucus will be held April 17th through April 20th.

Elections for New England Regional SAG User's Group officers will be held at the next meeting.

The next meeting will be held on Monday, April 25th at the Sheraton-Islander, Goat Island, Newport, Rhode Island. The afternoon session will be set aside for Special Interest Group (SIG) meetings.

Presentations

Mike Callies, Software AG technical support, spoke on NET-PASS (Network Parallel Access System, a Software AG product).

George Boitano, Boston University, gave a comparison of Session Managers focusing on Candle Supersession, Warehouse Multisess, Software AG's NET-PASS, and Duquesne TPX.

Stan Smith, Lechmere, spoke on the experiences at Lechmere with NET-PASS.

Jim O'Leary, Software AG, spoke on Software AG's CASE Products.

Bob Myers, an independent consultant, spoke on the use of Weighted Keys.

EASTERN REGION

New Regional Officers Are Introduced

The Quarterly meeting of the Eastern Region Software AG User's Group was held at the Holiday Inn in Crystal City, Virginia on Tuesday, January 12, 1988. The meeting was called to order at 9:00 a.m. by President Bob Comstock. The following orders of business were covered:

1. General Business
2. NET-PASS Introduction
3. User Conference Update
4. Federal Update
5. Integrating NATURAL Elite into your Training Program
6. Seamless IBM/VAX Product Integration

General Introduction

The January meeting began with an introduction by Bob of himself and the other newly elected officers and product representatives. The 1988 Software AG Eastern Region User's Group staff includes:

OFFICERS:	
President:	Bob Comstock
Vice President:	Tina Pappas
Secretary:	Laura Lewis
PRODUCT REPS:	
ADABAS:	Jonathan Naugle
NATURAL:	Joseph Bauer
NATURAL SECURITY:	Michele McCauley
SUPER NATURAL:	Nora Rice
NATURAL CONNECTION:	Mike Jenkins
CICS:	Dick Jones
VMS:	John Fredrickson
PREDICT:	Penny Carchedia
DBA:	Jerry Austin
ADABAS SQL:	Bob Nemes
Performance Monitors:	Agnes Purcell

The schedule for the remaining meetings was confirmed for April 12, July 12, and October 11.

Federal Update

Dick Taylor, Software AG, announced the formation of the Software AG Federal Division

which is a consolidation of all of Software AG's Federal accounts under one division. Dick also announced the formation of the Federal Government Business/Industry Group. The purpose of the Group is to develop and promote a contact list of professionals involved with supporting the U.S. Federal Government through the use of Software AG products and services. George Coker has agreed to act as interim Chairman to get the BIG established and until formal elections can be held.

User Conference Update

Larry Jayne, Software AG, declared the 1987 International Software AG Users' Conference a success and is looking forward to the 1988 Conference being even bigger and better. He said a copy of the Conference proceedings can be purchased from Software AG for \$50. A audio/video tape may also be purchased.

The schedule for the next International Conference is as follows:

Date: September 25-29, 1988
Place: Opry Land Hotel
Nashville, Tennessee

Integrating NATURAL Elite

Susan Lowy, Software AG, talked about integrating NATURAL Elite into your training program. Elite is an online training tool used to teach NATURAL and NATURAL base products with the capability to monitor student performance. Since Elite is written in NATURAL, you must have NATURAL installed on your system.

IBM/VAX Product Integration

Lee Cooper, Software AG, talked about ADABAS VMS and its similarities and differences to the IBM version. Basically, the same technology was used as in IBM and then it was moved to the VMS world. Some of the differences include:

- data types—IBM using EBCDIC and DEC using ASCII
- ADAMUP—the mass update utility may not be added to VMS
- everything in VMS world is online

EASTERN

continued from page 17

- can use EDT to edit NATURAL programs—it is a true compiler

Similarities include:

- same performance considerations
- same design considerations
- FDT is equivalent
- all the other capabilities are supported (besides ADAMUP)

So as far as ADABAS goes, you won't see any major differences. You should easily be able to move into the VMS world as a DBA from the IBM world.

On the NATURAL side, if you know NATURAL 1.2, you know NATURAL VMS. PREDICT and SUPER NATURAL are available with ADABAS SQL to be released this quarter. NATURAL SECURITY is projected for this summer. Lee talked about application migration. If you were to move an existing system from IBM to VMS you should be able to do so with no redesign considerations, but possible recoding. Recoding may be necessary if masks have been used because of the different data types. Also, if any IBM specific code has been used, then obviously that would need to be adjusted.

Lee also talked about connectivity. NETWORK VMS allows VAX to converse with other VAX or IBM, and allows transparent update/access from one data base to another as long as it's in the same network. Distributed database processing capability is not available now—will come with ADABAS V5 and ADANET on the IBM side.

SIERRA PACIFIC REGION

New Regional Representative Elected

Ronna Slobe
State of Nevada

The Sierra Pacific Regional User's Group had a meeting on December 1, 1987. The meeting was hosted by Sacramento County.

Ken Marcum from Software AG, Denver, gave the first presentation of the morning on AMI2SQL which is the ADAMINT to ADABAS SQL conversion product. Ken explained some about ADABAS SQL and how the conversion is handled. It was a good presentation for the users who have purchased or are considering purchasing ADABAS SQL, and will help in planning the conversion process.

The second presentation was given by Bill Wiesman from Tasseract. Tasseract markets Human Resource software that is table driven. Their software supports NATURAL and SUPER NATURAL and uses a single database.

The final presentation was given by Trevor Wyner from SPL. Trevor talked about SPL's general ledger system and the services that SPL provides.

Due to Ron Johnson being transferred to the East coast, a new Regional Representative was elected. We want to thank Ron for his leadership while he was here and we will miss him. Jon Schmitt was elected as our new Regional Representative and he took office immediately.

Time ran short at the meeting and we decided to discuss the conference at our next meeting to be held on March 1, 1988 in San Francisco at Dole Processed Foods.

SIERRA PACIFIC REGION

Ken Torri "Walks Through" ADABAS 5 Conversion Process

Ronna Slobe
State of Nevada

March 1, 1988 the Sierra Pacific User's Group held its quarterly meeting in San Francisco at the offices of Dole Foods. Seventeen people attended representing 13 companies.

Larry Jayne of Software AG, Reston, talked about the conference in Miami and the feedback Software AG has received. Everyone agrees it was a very informative conference. Thanks to a lot of hard work, the conference was very well organized. This year's conference was also discussed and Larry gave us an idea of what we could expect in Nashville, Tennessee.

Larry also gave a presentation on Software AG's Application Strategy. Software AG sees the future as being a team effort, with the "team" including, Software AG, the user community and third party vendors. If we all work together and support each other in applications development, everyone will benefit. The end result will be that better applications will be developed, faster and more efficiently.

Ruth Pacheco, who now works for Telos, but was a long time user of ADABAS from Utah, gave a presentation on ADABAS SQL. ADABAS SQL is a data manipulation language which uses a subset of SQL and generates ADABAS direct calls. Ruth has done a good deal of work with ADABAS SQL in Utah which enabled her to give a very informative presentation.

After lunch the meeting was turned over to Ken Torri from Software AG, San Francisco. Ken has been working with the County of Sacramento who is a Beta Test site for ADABAS V5.1.0. There was some great discussion about the new features, including on-line services. Ken, along with Ted Satow from Sacramento County, walked us through the process of converting from V4 to V5, how they did it, what they would change if they had to do it again, and things to watch out for. We asked Ken to return to our next meeting for a follow-up presentation.

After Ken's presentation the group had a small round table discussion about NATURAL 2 and how the different shops are handling the conversion, training and problems or questions that come up.

The schedule for future meetings is:

June 7, 1988—Sacramento, Health and Welfare Data Center
September 12, 1988—North Eastern California, Location to be announced.

R. J. Thomas Presents Features on ADABAS 5

The meeting was attended by over 80 people and was called to order by Larry Godec, Southwest Regional Representative. The following orders of business were covered:

1. General Business
2. Demonstration of
AUTO-MATE Plus
John Bantleman and Elise Rabalais of LBMS
3. ADABAS Version 5
R. J. Thomas of Software AG
4. Round Table discussion on experiences with NATURAL 2

General Business

The next meeting will be held on May 13, 1988 at the Dallas-Fort Worth Airport Marriott. If anyone has an interest in a specific topic, they should contact Kerrie Meyler (214) 450-5522 or Laura Hanley (214) 450-5610. The Southwest Region will be sponsoring a NATURAL 2 class this Spring. Anyone interested should contact Kerrie, Laura or Larry Godec (214) 250-7390.

Results of the 1986 SAGGROUP users survey and answers back from the Executive Committee were passed around. The following Executive Committee positions are up for election at the International Conference in September.

President
Secretary
PREDICT Product Representative
NATURAL Product Representative

Larry Godec has been asked to fill the position of Executive Committee Secretary, vacated when Steve Bradley went to work for Software AG. Kerrie Meyler will assume the responsibilities of Regional Representative until the conference.

The Southwest Region has a new user: The Dallas Central Appraisal District. Welcome!

Demonstration of AUTO-MATE PLUS

The AUTO-MATE PLUS CASE package was presented by John

Bantleman and Elise Rabalais. The goal of AUTO-MATE PLUS is to tie the functional view and the data view of a system together, and to create a standard way of designing systems.

This is a powerful interactive graphics package which supports the Systems Analysis facilities, application development, logical data design facilities, physical data design facilities, and the physical process.

Process definition features include defining data flow diagrams to provide a pictorial view of the systems processing, the ability to further define the systems processes by adding the business rules to be applied, detailed definitions of the transactions that support the system functions, the operations to be carried out within each transaction module, and extended operations logic that can be recorded in pseudo or program code.

In-line application design is done by a graphic dialog design language used to describe the structure for on-line applications. This allows the user and analyst to review it using the Dialog Tester.

AUTO-MATE fully supports logical data modelling via entity diagramming and relational data analysis. Logical Data Models are converted automatically to "1st cut" DBMS designs. The resulting syntax may be tuned on the PC and then ported to the mainframe for further development activities.

LBMS is in the process of signing a worldwide marketing agreement with "INTEGRATOR" to include COBOL code generation in their system development package. They have also worked together with Software AG to develop a bridge to import/export data to/from PREDICT. This bridge will be free to AUTO-MATE PLUS customers for the next 6 months.

ADABAS 5 Generalities and OS Considerations

R. J. Thomas of the Denver Customer Support Center gave an updated version of the presentation he gave at the International Conference in Miami. He covered Cross-Memory Services vs. the SVC; runtime considerations; EXCPVR; AMODE/RMODE; installing the SVC under MVS, VS1, and VSE; converting the data base from V4 to V5 and back to V4 if necessary;

problems reduced or corrected by Version 5; an ADABAS Module Characteristics table; migration aid software; and the philosophy behind AOS (ADABAS Online Services).

Cross-memory Services vs. the SVC

In ADABAS 5, Software AG is going to use both the Cross-memory Services (XMS) and the SVC. The XMS will be integrated in the code under MVS and there will also be an SVC which will need to be installed. The SVC (Router) will be used for more things than just ADABAS. It will be an integral part of "Distributed Data Base Network Architecture," which is the direction Software AG is headed. SVC call types include:

SVC 0—ADABAS DB Signon (MPM call)
SVC 4—Post ADABAS (User call)
SVC 8—Get Buffers (MPM call)
SVC 12—Put Buffers (MPM call)
SVC 16—Get Buffers (User call)
SVC 20—ADABAS DB Signoff (MPM call)
SVC 24—Getmain/Freemain (MPM call)
SVC 28—Return DBID Table Address (MPM call)

By using the XMS, the Get Buffers and Put Buffers can go away. This will save CPU resources.

Converting V4 to V5

To convert a V4 data base to V5 status, perform the following steps:

1. Prepare JCL and ADARUN parameters
2. Install Migration AIDS (A SAG supplied NATURAL program which can be used to maintain a table which allows you to point a specific application to a V4 or V5 data base)
3. Successful ADAEND of V4 Nucleus
4. Successful unload of Checkpoint and Security files
5. Successful ADAFIX Dump of V4 data base
6. Start the V4 Nucleus to clear the checkpoint block (ASSOC RABN 8)
7. Successful ADAEND of V4 Nucleus
8. Format V5 Work data set using V5 ADAFRM. (Block size for work has changed for 3380s. You will need to do a

NewWork to change this number in the GCB)

9. Start the V5 Nucleus.
10. Load Security cards and Checkpoint data. (Format of these files has changed so there will be a program supplied to reformat).

To convert back from a V5 data base to V4 status:

1. Successful ADAEND of V5 Nucleus
2. Successful ADASAV of V5 data base
3. Start the V5 Nucleus to clear the checkpoint block (ASSOC RABN 8)
4. Successful ADAEND of V5 Nucleus
5. Execute program ADA5T4
6. Format V4 Work data set using V4 ADAFRM
7. Load the Security and Checkpoint files from the backup taken from V4 in step 4 above.
8. Start the V4 Nucleus

NOTE: Once you begin using the new features of V5, you *cannot* convert back to V4.

Problems reduced/corrected by V5 include the following:

- RSP075 should go away because ADABAS turns update off so updates are not done when the file goes into 5 extents
- RSP042 should be reduced
- Work Part-1 overflow is harder to get
- The hold queue should not fill up because of a new parameter (NISNHQ)
- The ADAFIX restore will not try and restore a file which doesn't exist
- UI and NI space is automatically reused
- Improved diagnostics for Error 10
- Improved MPM statistics
- Utility "Multiple Module" processing reduced
- Improved Dump/Restore performance
- DEALLOCATE utility to deallocate file extents

- DECREASE utility to decrease Associator/Data Storage space
- DELCP utility to delete checkpoint blocks
- OPERCOM utility to execute ADABAS operator commands
- REFREASH utility to set file to empty status
- ADADCK utility to check Data Storage for duplicate ISN's within a block, checks for incorrect block lengths within a permitted range, and insures that the DSST contains the correct values.
- ADAPLP utility to selectively print the Protection log

Run-time Considerations

Some run-time considerations include:

- ADABAS automatically executes as non-swappable
- ADAUSER modules from V4 are upward compatible with V5
- ADASVC is reentrant
- ADALINK modules can execute above the 16 meg line
- Increased memory requirements for the V5 nucleus (For DOS, the minimum seems to be 800K)
- CSA space usage is significantly reduced (if NC parameter allocated 400K of CSA in V4, this will use a few hundred bytes in V5)
- Under MVS/XA, LBP space is totally and automatically allocated above the 16 meg line when ADARUN has been linked with AMODE = 31. Note: Just because it is above the line, don't go crazy allocating LBP. If you allocate 50 or 100 meg, your paging rate will degrade your system.
- It was recommended that REF: IBM System Modifications manual, GC28-1152, "The IEFUSI Interface" and the first 10 pages of REF: IBM Publication GC28-1158, "31 Bit-Addressing" be read.

EXCPVR

Under OS, a considerable reduction in CPU utilization can be realized if EXCPVR is used. EXCPVR "will" be used when ADARUN is APF authorized and all ADABAS modules are contained in APF-authorized libraries. (It was recommended that you run some jobs without the

APF-authorization and take timings. Then put ADABAS modules in APF-authorized libraries. Bounce the MPM and run them again. If you don't see a considerable reduction in CPU time, you don't have the modules APF-authorized).

AMODE/RMODE

AMODE = Addressing mode. AMODE denotes whether the processor will interpret all instruction addresses as 31 bits to access up to 2 gigabytes of memory, or as 24 bits to access up to 16 megabytes in memory. With MVS/XA, you might specify AMODE = 31. With MVS 370, specify AMODE = 24.

RMODE = Residency mode. RMODE specifies where a program is expected to reside in virtual storage.

Installing the SVC Under MVS, VS1, and VSE

The SVC (Router) can be installed as permanent or non-permanent. Software AG suggests that it be permanent. If non-permanent is desired, the SVC installation program (ADASIP) provides an interim method of dynamically installing the ADABAS SVC without requiring an IPL. When using this non-permanent install procedure, ADASIP must always be executed after a system IPL. ADASVC is loaded and executes within the CSA.

With permanent installation, you link ADASVC and ADASIR as authorized modules into the appropriate APF-authorized libraries. Next, an entry named IEFSSNxx, which is an 80 byte card image, is placed into a new or existing member of SYS1.PARMLIB for ADASIR. Finally, MVS is re-IPLed to initialize the ADABAS V5 router. All subsequent IPLs will automatically initialize the ADABAS V5 router.

Under VS1, there is no non-permanent installation. Therefore, ADASIP does not exist. ADASIR is user. The SVC must be a type 2 or resident type 3 or 4.

For DOS, the following considerations were mentioned:

- For the SVC install, there is an ADASIP module but no ADASIR
- The Set SDL command in the JCL puts the SVC in the SDA. You then execute ADASIP as part of the IPL or later.

- In V4, you had to specify a SYS#. In V5 you don't need SYS# for disk files. You still have to make the manual SYS assignments for tape.
- Use SIZE=ADARUN which allow you to use all the space in your address space.
- There is a new SYS assignment. SYS009 is allocated for the printer and part of the job output messages are put here.

ADABAS Online Services

ADABAS Online Services is an on-line interface to the ADABAS Nucleus and the ADABAS data base. It provides the DBA with the ability to perform functions which were previously restricted to batch utility operations and operator commands. It provides the DBA with the ability to control and monitor the activities of the nucleus.

Round Table Discussion

The round table discussion was a panel format with several people sharing their experiences with NATURAL 2.

Jim Bischoffberger, City of San Antonio, told us about NATURAL VSAM under V2. He was a beta site for this and said that he has had no problems with the VSAM part. The following are NATURAL VSAM enhancements:

- Code written in command level
- CICS MRO support
- CICS shared resources supported
- Update VSAM and ADABAS file within the same ET
- Multiple DBID support which increases the number of VSAM files you can have
- You can now open all VSAM files with one OPRB command
- You don't have to specify a starting value on a READ . . . WITH KEY
- Have a second PPT entry for NATURAL VSAM nucleus
- Support of VSAM password
- C* capabilities

- Compression of the VSAM Systemfile
- Packed fields can be signed or unsigned
- Improved performance

Mike Day, Occidental Petroleum Services, talked about windowing. The "Set Control" and "Input" statements can be used to create a window. The "Set Control WLIICcc" defines the size of the window with II equal to the number of lines long and the cc equal to the number of columns wide. The "Set Control WBII/cc" tells where on the screen to place the upper left corner of the window. The "Set Control WF" will put a frame around the window, and the "Set Control WM" will not. "Set Control WB" will 'close' any open window. This should be the first Set Control statement because this will reset everything. Next, set the size of your window and then set the position of it. You are now ready for the Input statement. Using "Set Control N" immediately before the Input statement will not wait for a terminal input. This is how you can set up multiple windows on a screen.

Hunt Gregg, Scottish Rite, explained that they have made a management decision to use structured mode when coding NATURAL V2 systems. They have written a general ledger system entirely in structured mode. It consists of about 40 programs with about 11,000 lines of code. This took 3 programmers approximately 4 months to write. He suggested an approach to program design using internal subroutines when the processing code is used over and over again within a program, and external subroutines for PF key processing and error checking type processing.

Rich Golden of Louisiana Gas explained several of the map editor features.

- Automatic help maps can be defined for a specific field or for the entire map. It is invoked by pressing the help PF-key or by placing a "?" in the first position of

the field. You can pass a variable to the help routine and reference any field in the GDA.

- Make sure to use a common layout for all your maps because only data that has changed gets transmitted from one map to another.
 - Placing a .E on a field will get you into the extended field editing feature. Remember that the edit mask defines the field for input as well as output. If a field has an edit mask of 999,999 you would have to input leading zeros and commas.
 - When using an array, all fields must have the same attributes.
 - When using processing rules, if a field is changed from modifiable to protected by the program, the processing rule will still be executed.
 - Processing rules only have access to fields in the map. They do not have access to fields in the program or GDA. One way around this is to define your map larger than the screen and put the extra fields on the portion of the map which is not displayed.
 - Do not put "END" statements in processing rules.
 - Do not "STOW" or "SAVE" processing rules.
- Tim Hornung of Standard Oil told us about PREDICT 2.2.3 which has cleared up problems with PREDICT V2.2.2, and has several new features.
- The "GLOBALS" command lets you switch between structured and report mode within the rule editor of PREDICT. This allows you to control the mode for your processing rule in PREDICT.
 - The "CHECK" command performs a syntax check on a processing rule in PREDICT. It will tell you which line is in error.
 - The "RUN" command allows you to test the rule. A dummy map will be displayed which contains a field for input.

PREDICT Used for Major System Design at Standard Oil

The Southwest Region Users Group meeting, held in Dallas, TX, was hosted by Larry Godec, Southwest Regional Representative.

General Business

The September meeting began with a general discussion of business concerning the Southwest Region.

The next Southwest Region Users Group meeting will be held on February 5, 1988. The major topic of the meeting will be ADABAS 5.

Collette Farabaugh, the SAGGROU North American Representative, sent a form to be passed around for persons to document any outstanding logs, questions, concerns, complaints, etc. which they wish to pass along to the Executive Committee.

PREDICT In Support Of Major Project Development

Tim Hornung and Patty Piccola, Standard Oil, discussed how they used PREDICT to document and implement a major system design.

Their task was to replace all Finance and Control Systems by 1989. Some steps they have taken to accomplish this follow:

1. Develop a cross reference between old files and old applications
2. Catalog old files and develop a data dictionary for old elements (creating an historical database)
3. Set up a corporate dictionary for all types of files; ADABAS, VSAM, SEQUENTIAL
4. Create a standard file containing all base fields (those not derived by a program)
5. Identify major files
6. Define new elements based on the old elements and package requirements
7. Populate PREDICT with major files
8. Pull information for these files forward from the standard file

9. Produce the following reports from PREDICT:

- Vendor vs. Custom reporting
- Cross reference reports
 - a. Standard files
 - b. Application systems
 - c. Application files
 - d. Data elements
- "Wild Card" data element reports
- Verification/Audit reports

The benefits of using this approach are as follows:

- Automate data analysis
- Flexibility of reporting
- Resolve backlog of history files
- Single repository for all files
- Single source of data definitions
- One set of common definitions
- Facilitate Ad hoc Reporting
- Facilitate changes
- Lower system maintenance cost by using X-REF
- Reduce impact of personnel changes
- Facilitate data integration

They have graciously agreed to share their programs and reports used in customizing PREDICT. Anyone interested should send a tape to:

Tim Hornung
Standard Oil
P.O. Box 4587
5151 San Felipe
Houston, TX 77210

Please specify whether you want the programs in NATV1 or NATV2.

NATURAL 2

Ken Gregory, University of Texas, held an online demonstration of NATURAL 2. He began his presentation by pointing out several differences between NATURAL V1 and NATURAL V2:

In NATURAL 2, "SCAN" now scans from where you are in the program, downward or upward (depending on a directional indicator). So, if you want to scan from the top of a program downward, you must first be at the top of the program.

NATURAL 2 only transmits changed data to maps. For example, rather than transmitting the entire map each time a user changes a field, only the changed fields in the map would be transmitted.

The new structured conventions force all constructs to be ended with an END-construct statement.

Before the SORT clause, however, an END-ALL statement must be issued which will end all previous constructs.

The SORT clause now has a USING statement; thus, fields before the SORT statement are not automatically pulled into the sort.

NATURAL 2 now has subprograms! A subprogram has a 'define parameter' statement as the first statement in the program, which defines it as a subprogram.

The syntax of the 'FETCH' statement has been changed to allow for a return to the calling program. The statement may now be coded as FETCH program-name RETURN.

Maps are no longer limited to 24 x 79. They are now capable of displaying a 249 x 250 size area through scrolling.

One major point to be aware of is that with NATURAL 2 the source and object modules must be stored in the same libraries.

Ken Gregory had some excellent handouts on NATURAL 2! These handouts included information from a class U.T. put together for the programmers. Copies of the handouts will be distributed through the Southwest Region Software AG office, in Dallas, TX. Anyone interested in a copy, please contact your local Software AG account representative.

Demo Of AUTO-MATE PLUS CASE Tool

Elise Rabalais and Roger Learmouth presented LBMS's CASE package, AUTO-MATE PLUS. Currently, Software AG is investigating ways to interface PREDICT's data dictionary with LBMS's CASE package.

This bridge will allow the user to take data from PREDICT to AUTO-MATE PLUS for creating the system design, and send the data back to PREDICT to update documentation. At the current time, a similar bridge is being distributed by LBMS.

Open Forum

The last order of business was an open forum where general topics were discussed. Several important topics were brought up:

Larry Godec mentioned a documentation limitation of the ADAFRM utility in MVS shops. When doing

an increase, if you follow the documentation example provided, only one pack may be added per execution of the utility. However, there is a workaround solution to this problem. If you need further information on this subject, contact the Denver customer support center.

Early Warning AMI002 was announced to be applied to SM10 for ADAMINTS (in MVS shops).

Kerrie Meyler, TGI Friday's, announced that she is interested in starting an information center, and would like anyone who has an established information center to contact her. Her phone number is in the back of Connections.

Some important utility considerations were brought up:

When running utilities, the LP parameter must equal the LP parameter in the nucleus, or results will be unpredictable. If you haven't zapped it or do not put it in your ADARUN parameters, it will use the default size of 1000 blocks.

Also, the ADARES utility should be run with the database down. If it is run with the database up, the updates will be recorded on the PLOG.

A paper was passed around for anyone using CASE products to sign, so that they, or others, may have a network of contacts. The following people currently have CASE packages:

Dale Nichols—UTSA
Marvin Miles—Kerr McGee
Claire VanWestenburg—TRS

We have four new members to the SW Region User's Group! They are:

Celeron (Houston, Texas)
Jones Truck Line (Springdale, Arkansas)
Radiology Associates (Dallas, Texas)
Schwegmann Grocery (New Orleans, Louisiana)

We welcome their attendance and input.

How One User Increased NATURAL 1.2.7 Buffer Pools Under CICS

Keith Newsom
Washington State Department of
Information Services

We were between a rock and a hard place. In our production NATURAL environment (NATURAL 1.2.7 under CICS), response time was deteriorating as transaction rates increased.

The NATURAL buffer pool wasn't big enough. NATURAL 2 offered a bigger pool, but we weren't ready to convert yet.

Our pool's PERCENTAGE READS SAVED had dropped below 70%, even though the pool was up to its maximum of 511K. Calls to the FUSER file were around 24% of all MPM calls. The pool was on the verge of thrashing. We had done almost everything we could to decrease module size, and we didn't want to link user programs into the NATURAL nucleus.

NATURAL 2 offered a new way to create buffer pools under CICS. The pool is getmained rather than assembled and loaded, which allows it to be whatever size your private area will stand. I discovered I could retrofit this technique to NATURAL 1.2.7 quite easily by modifying the NATBPINC assembly, the NATBPOL link edit, and the OSCOR parameter.

The NATBPOL link edit control cards are:

```
INCLUDE NAT (NATBPINC)
ENTRY CMBPINT
NAME NATBPOL (R)
```

Also, you may have to increase the OSCOR parameter within DFHSIT, so CICS can do the large getmain.

Results with a 1024K buffer pool were that our PERCENTAGE READS SAVED increased from 70% to 90%, which dramatically improved transaction response. Now 95% of all transactions finish within 3 seconds, compared to 88% before.

It is my understanding that another user has modified NATURAL 1.2.7 so that it does the getmain above the 16 megabyte line which is even better. However, NATURAL 2.1.3 is supposed to have this capability.

Until we convert to NATURAL 2, we can survive with a larger buffer pool under NATURAL 1.2.7. Perhaps some of you can, too.

The changes we made to NATBPINC are:

ICM	R0,15,ABPMSIZE	POOL SIZE (BYTES)	00001022
GETMAIN	EC,LV=(0),A=ABUFPOOL	GET POOL	00001024
LTR	RF,RF	WAS GETMAIN OK?	00001026
BNZ	INTERRG	.N "BPMG" ABEND	00001028
MVC	BPTSIZE,ABPMSIZE	POOL SIZE (BYTES)	00001042
MVC	BPNUMDIR,ABPMDIRS	# DIR. ENTRIES	00001044
INTERRG	DFHPC	TYPE=ABEND,CANCEL=YES,ABCODE=BPMG	00002022
ABUFPOOL	DC	A(0)	A(BUFFER POOL)
NBPMDIRS	EQU	128 <=== DEFINE	# DIR. ENTRIES
NBPMSIZE	EQU	1024 <=== DEFINE	POOL SIZE (K)
ABPMDIRS	DC	A(NBPMDIRS)	# DIR. ENTRIES
ABPMSIZE	DC	A(NBPMSIZE*1024)	POOL SIZE (BYTES)

Software AG Product Status Report

Software AG offers this Product Status Report, updated quarterly, as a regular feature of Connections in order to advise our customers which products we have released recently and which are scheduled for release in the near future.

Our goal is to provide you with products that perform as you expect them to perform, and that can sometimes mean a delay in releases while last-minute bugs are fixed or changes are incorporated. It is, therefore, important to note that all target release dates are as accurate as possible at press time, but are subject to change without notice.

Released: January 1988 to April 1988

Data Base/Dictionary

System Maintenance

Releases	Date of Release
ADABAS SQL 1.2 (OS)	March 1988
ADABAS SQL 1.2 (DOS)	March 1988
ADABAS VTAM 1.1.1	March 1988
Channel to Channel SMO2	March 1988

Application Development

Versions

NATURAL 2.1.2 (CMS)	February 1988
NATURAL SECURITY 2.1.2 (OS)	January 1988
NATURAL SECURITY 2.1.2 (DOS)	January 1988
NATURAL SECURITY 2.1.2 (CMS)	January 1988
NATURAL 2.1.3 OS/DOS/CMS	April 1988
NATURAL SECURITY 2.1.3 OS/DOS/CMS	April 1988

Communications/Distributed

Products

NATURAL PROCESS	February 1988
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Version

COM-PLETE 4.4	February 1988
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User Services

Versions

Versions	Date of Release
NATURAL Elite: NATURAL 2 Business Professional Courseware 1.1.1	January 1988
NATURAL Elite: NATURAL 2 Intermediate Programming	April 1988

VMS

Products

NATURAL CONSTRUCT	January 1988
-------------------	--------------

Scheduled for Release: January 1988 to September 1988

Data Base/Dictionary

Products

ADABAS DL1 Bridge 1.1.0
alpha test completed
Target release: Third Quarter 1988

Versions

ADABAS 5 (w/Online Services)
beta test
Target release: Second Quarter 1988
NET-WORK 5
internal test
Target release: Second Quarter 1988

System Maintenance Releases

ADABAS SQL 1.2
CMS: beta test-internal
Target release: May 1988
PREDICT 2.2.3
beta test
Target release: May 1988
REVIEW 2.2
internal test
Target release: August 1988

Application Development

Products

NATURAL 2 DB2
customer test
Target release: Third Quarter 1988
NATURAL CONSTRUCT
beta test
Target release: Second Quarter 1988
NATURAL Optimizer
internal test
Target release: Third Quarter 1988

Versions

NATURAL 2.1.3
IMS/DC: beta test
Target release: Second Quarter 1988
NATURAL 2.1.3 DL1
Customer Testing
Target release: Third Quarter 1988

Communications/Distributed

Versions

COM-PLETE 4.4
DOS: beta test
Target release: July 1988
NET-PASS 2.1
DOS/VM
beta test
Target release: May 1988

System Maintenance Releases

ACCESS 1.2
beta test
Target release: June 1988

User Services

Versions

CON-NECT 2.1
beta test
Target release: July 1988
NATURAL CONNECTION (Mainframe) 2.2
internal test
Target release: June 1988
SUPER NATURAL 2.2.1
beta test
Target release: June 1988
NATURAL Elite: NATURAL 2 Advanced Programming Technical Courseware 1.1.1
pre-beta
Target release: August 1988
NATURAL Elite Basic 1.3.3
beta test
Target release: June 1988
NATURAL Elite ADABAS Fundamentals Courseware 1.1.1
internal test
Target release: August 1988

VMS Products

NATURAL Elite Basic 1.3.1
beta test
Target release: June 1988
NATURAL 1.3.1
beta test completed
Target release: May 1988
NATURAL Graphics
internal test
Target release: August 1988
NATURAL 1.4
internal test
Target release: August 1988
SUPER NATURAL 2.1
beta test
Target release: May 1988
Workbench
beta test
Target release: August 1988
ADABAS 1.5
beta test
Target release: June 1988
NET-WORK 1.5
beta test
Target release: August 1988

Software AG Users' Group Tools Request Form

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Any licensed user of Software AG products may request a copy of the DBA (for ADABAS & NATURAL) Tools or the COM-LETE Tools.

Complete the information below and send to: Users' Group Liaison, Software AG of North America, Inc.
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Company Name	<input type="text"/>				
Division	<input type="text"/>				
Street 1	<input type="text"/>				
Street 2	<input type="text"/>				
Street 3	<input type="text"/>				
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Software AG Users' Group Regions in the United States



This map represents changes made in the United States regional Users' Group boundaries at the International Conference.

Conference Audiocassettes

17th International Software AG Users' Conference Miami, Florida — November 1-5, 1987

- T302-1 Opening General Session—Pioneer Users of Software AG Products; The Different Technology Dimensions—Practical vs. Academic; Your Partner for Software Success; SAGGROUP Business Session
- T302-2AB Opening General Session, cont.—Keys to the Next Dimension and The Evolving Computer Industry; Architecture of the Next Dimension—Introducing the New Open Integrated Software Architecture; Product & Technology Update
- T302-3 Discovering the Next Dimension—Software AG Future Technologies & Strategies; The ER Dimension
- T302-6 Communications: Topic of the 90's
- T302-8 CON-NECT 2 A New Dimension in Office Systems
- T302-10 ADABAS Experience & Outlook
- T302-11 ADABAS (VMS) Directions
- T302-12 ADABAS OS Considerations
- T302-13 PREDICTable Menus; Documenting The Undocumented Using PREDICT; Incorporation of COBOL Copy Books
- T302-14 The Rocky Hardware Picture Show
- T302-15 NATURAL PROCESS & NATURAL OPERATIONS
- T302-16 NATURE ELITE Future & Directions
- T302-17 Education/Documentation
- T302-18 NATURAL (VMS) Directions
- T302-19 ADABAS DOS Considerations
- T302-20 PREDICT/Data Dictionary
- T302-22 NATURAL Engineering Series & CASE Directions
- T302-23 TRS-Text Retrieval With ADABAS & NATURAL
- T302-24 End User Data Base Enquiry System; A SUPER NATURAL Story; Financial Information System (F.I.S.)
- T302-25 NATURAL (VMS) User Interface, User Equipment, WORKBENCH; VAX Added Functionality: PREDICT, SUPER NATURAL, ADABAS SQL
- T302-26 ADABAS 5 Experiences
- T302-27 Catch the New Tide—Strategic Use of Information Technologies in Japan; Adventures in Data Dictionary Activation
- T302-28 NATURAL Tips & Techniques
- T302-78AB NATURAL Tips & Techniques, cont.
- T302-29 COM-PLETE Debugging & Trouble-shooting
- T302-30 PC Directions
- T302-31 ADABAS (VMS) Performance
- T302-32 PREDICT & Data Dictionary Directions
- T302-33 DOS Workshop
- T302-34 REVIEW 2
- T302-35 A Flexible Online Security System; Accelerated Application Development With NATURAL 2
- T302-36 Using COM-PLETE V4.4
- T302-37 NATURAL (VMS) Performance
- T302-38 NATURAL SECURITY
- T302-39 Multiple Production Database: Making Them Talk; ADABAS Security—A NATURAL System; NATURAL Filebirth—The Conception, Delivery & Nurture of a File
- T302-40 NATURAL Performance Issues
- T302-41 ADABAS TPF & ADABAS HPE
- T302-42 ADABAS & NATURAL On the PC
- T302-43 Service Connection
- T302-44 The Two NATURAL's: VAX & IBM
- T302-45 ADABAS SQL, First Year of Operation Experiences & Future Development; ADABAS SQL Conversion from ADAMINT
- T302-46 NET-WORK 5 Introduction & Features
- T302-47 Preparing Your CASE Shopping List
- T302-48 Table Support for NATURAL & ADABAS; NATURAL Source Code Librarian
- T302-49 NET-PASS V2 Introduction
- T302-50 SUPER NATURAL Directions Workshop
- T302-52 ADABAS 5 VM/CMS
- T302-53 NATURAL Directions
- T302-54 A NATURAL Based Programmers Workbench; Form Prototype to Finished Product, The Flexible Transfer of Data Between Online NATURAL Programs
- T302-55 COM-PLETE Performance & Tuning and Tools
- T302-56 Remote Data Base Access Via NET-WORK (VMS) Communications
- T302-57 ADABAS Performance
- T302-58 The Five P's of Data Base Environments; Integrated Systems: No Borders, No Boundaries; Living with the New ADABAS/VM
- T302-59 NATURAL 2 Migration & Conversion
- T302-60 Coping with the Problematic Changing World
- T302-61 Introduction to NET-PASS
- T302-62 NATURAL ELITE Authoring Tips & Techniques
- T302-63 NATURAL ELITE (VMS)
- T302-64 ADABAS Change/Enhancement
- T302-65 Software AG's Application Strategy
- T302-66 NATURAL 2 Application Help Systems
- T302-67 Prototyping or Pandemonium? Multi-Iterative Prototype Design & Its Impact on Project Management; NATURAL 2 Application Design Strategies
- T302-68 Preview of the NATURAL Expert Development System
- T302-69 Monitoring & Tuning The COM-PLETE Online Environment: Key Performance Issues
- T302-70 The ADA to ADABAS Connection; High Speed Communications Between IBM & VAX Data Bases
- T302-71 A Generic File Design to Support Tables & Systems Development; AUCS-ADABAS Utility Control System; EDIT JCL—A Job Command Language Editing & Submitting System Within NATURAL
- T302-72 ADABAS Version 5 Performance; Abnormal Data Structures: Three ADABAS Files for Scheduling Systems; Data Base Management for Text
- T302-73 NATURAL Generator
- T302-74 Making NATURAL A Success; Micro/Mainframe Links: NATURAL CONNECTION and Other Adventures; Schering AG's Standardized Systems Development with ADABAS/NATURAL
- T302-75 NATURAL Change/Enhancement; PREDICT Change/Enhancement
- T302-76 COM-PLETE Change/Enhancement
- T302-77 Specific Procedures Toward Success on PREDICT (VMS)

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- | | | |
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| <input type="checkbox"/> ADABOMP | <input type="checkbox"/> MPM/NUCLEUS | <input type="checkbox"/> SECURITY |
| <input type="checkbox"/> CTCs | <input type="checkbox"/> NET-WORK | <input type="checkbox"/> UTILITIES |
| <input type="checkbox"/> DOCUMENTATION | <input type="checkbox"/> ONLINE SERVICES | <input type="checkbox"/> VM |
| <input type="checkbox"/> INTERFACES | <input type="checkbox"/> PERFORM. & ACCTG | <input type="checkbox"/> ADABAS (VMS) |
| | | <input type="checkbox"/> OTHER |

COM-LETE

- | | | |
|--|---|--|
| <input type="checkbox"/> COM-PASS | <input type="checkbox"/> NUCLEUS | <input type="checkbox"/> TERM. SUPPORT |
| <input type="checkbox"/> DOCUMENTATION | <input type="checkbox"/> PERFORM. & ACCTG | <input type="checkbox"/> UTILITIES |
| <input type="checkbox"/> FILE I/O | <input type="checkbox"/> SECURITY | <input type="checkbox"/> USER EXITS |
| <input type="checkbox"/> INTERFACES | | <input type="checkbox"/> OTHER |

NATURAL

- | | | |
|--|---|--|
| <input type="checkbox"/> DDM & DB | <input type="checkbox"/> LANG. FUNCTIONS | <input type="checkbox"/> SYSTEM FUNCTION |
| <input type="checkbox"/> DOCUMENTATION | <input type="checkbox"/> LANG. INTERFACE | <input type="checkbox"/> TP & OS INTERFACE |
| <input type="checkbox"/> EDITOR | <input type="checkbox"/> CON-NECT | <input type="checkbox"/> SECURITY |
| <input type="checkbox"/> EDUCATION | <input type="checkbox"/> PERFORM. & ACCTG | <input type="checkbox"/> 'SYS' FUNCTIONS |
| <input type="checkbox"/> GRAPHICS | <input type="checkbox"/> SYSTEM PARAM. | <input type="checkbox"/> SUPER NATURAL |
| <input type="checkbox"/> I/O | <input type="checkbox"/> NATURAL/CONNECTION | <input type="checkbox"/> NATURAL (VMS) |
| | | <input type="checkbox"/> OTHER |

PREDICT

- | | | |
|--|---|---------------------------------------|
| <input type="checkbox"/> CROSS REFERENCE | <input type="checkbox"/> INTERFACES | <input type="checkbox"/> USER SUPPORT |
| <input type="checkbox"/> DOCUMENTATION | <input type="checkbox"/> MODELING | <input type="checkbox"/> UTILITIES |
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