Minutes of the COMPRO Meeting at CERN on 11.11.86


Agenda

• Organization of Software meetings in 1987 - G. Kellner
• ALEPHMAIL, current status of implementation - R. Fantechi
• Report from Graphics group, in particular GKS-3D - U. Berthon
• Use and advantages of sharable images on VAX/VMS - C. Arnault
• VM environment - M. Reyrolle

1. Organization of software meetings in 1987, G. Kellner.

The following timetable for meetings was agreed:
Monday, 14.30 hrs: Monte Carlo meeting
Tuesday, 14.00 hrs: COMPRO meeting, followed by OFF-LINE meeting after a break
Wednesday, 14.00 hrs: ON-LINE meeting.

Note that the OFF-LINE meeting has been moved from Wednesday, 16.00 hrs, to follow the COMPRO meeting.
Meetings organized by various subgroups should be confirmed with Ariella.

2. ALEPHMAIL, current status of implementation, R. Fantechi.

R.F. gave an update to his presentation at Munich. AMSEND (Aleph Mail SEND) is now installed on VXCRNA and several other VAXes. If you want to instal it on your own VAX see the transparencies and contact R.F. for any questions.

A sheet with requests for updates is being sent out with the presently available information on a user, his computer login(s), etc. Please update this information where necessary and return the form to the secretariat. In particular, do not forget to indicate your preferred login account to receive electronic mail, otherwise you might receive copies at all your logins - this will be annoying for you and take more time to wait for the sender.
ALEPHMAIL will also be used in the near future to send copies of NEWS items to the SW representatives or a selected group of users.
NEWS has been modified to use the same user commands on IBM/VM and VAX/VMS. See also the HELP files available on both computers.

   U.B. gave a short overview of the currently available graphics 'programs' and their eventual implementation in JULIA, as well as other topics currently being looked at.
   A large part of her presentation was devoted to a clarification of the situation with GKS-3D, see the copies of the transparencies for details.

4. Use and advantages of sharable images on VAX/VMS, *C. Arnault*
   C.A. presented the advantages of sharable libraries, i.e. only a single copy for executable code, much faster loading, smaller working sets. He showed in detail how such a sharable library has to be constructed and installed (refer to the transparencies). It is evident that this could be quite interesting for several libraries used by GALEPH and JULIA (e.g. BOS, HBOOK, GEANT, ...). This has to be investigated in the near future.

5. VM environment, *M. Reyrolle*
   M.R. gave an overview of currently installed mini- and maxi-disks and their organization.
   HELP files have been created to help new users with ALEPH conventions and utilities available.
   Michel also explained the use of 'global variables'. This makes it much easier to transport EXEC files to different VM installation. Only the global variables have to be adapted to local conventions (e.g. use of disks, library names, etc.) but it is (in principle) not necessary to modify the EXEC itself. At present this is used for the GALEPH EXEC.

6. A.O.B.
   *P. Palazzi* gave a short update on the ADAMO tutorial. There will now be 2 courses, one at CERN begin December and one at Royal Holloway College, London, in January. Please send a message to Paolo (vxcrna::Palazzi) if you want to participate in any of these tutorials but have not yet registered.
   A series of 10 ADAMO application notes is now available. Part of this material will also be used in the tutorials. Please contact Paolo for copies. A 1-page summary for each of these notes will be distributed separately.
- Announced in Aleph Week in Munich.

- It is now installed on VxComa and tested on Rutherford VAX.

- A "Distribution Kit" is available for VAX/VMS

  Simple to install:

  - Copy the following files
    - ASEND.EXE
    - ASEND.COD
    - ALEPHNET.DAF
    - ASEND.HLP

  - Put the help file in your Help Library

  - Define system wide the logical name ALEPHMAIL$DIR

  - Put in system login set command ALEPHMAIL$DIR: ASEND

- It would be useful to install it on as many computers as possible:

  - To check correctness of the database

  - To discover problems in the program

  - To have feedback by users on what is going wrong, slow, tedious.
In the following days a test of a second version which will fix a series of problems, mainly in the area of sending mail.

In parallel an implementation for WinCIS will start.

For the update of the database, the Namir update sheets (now in distribution) will contain for each member all his/her login identifiers with the indication of the preferred one.

Remember that it is important to specify at least one preferred login to speed up the distribution of mails and to be sure that you see them.

An update sheet for institutes will be prepared with a part related to computer/networks used by it.
Mailing lists: please mark with an X

ALEPHN  
TPCDET  
TPCELE  
TPCCAL  
SOFTWR  X
DATAQ   X
EMCAL   
HADCAL  
BMLINE  
LAYOUT  
MCARLO  X
TRIGGR  
COMPRO  X
MINIV   

User name on various computer systems and electronic mail destination

<table>
<thead>
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<th>Preferred</th>
<th>Computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FANTECHI</td>
<td>Y</td>
<td>CERN.CERNVM</td>
</tr>
<tr>
<td>FANTECHI</td>
<td>Y</td>
<td>VXCRNA, CERN.VXCRNA</td>
</tr>
<tr>
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<td>N</td>
<td>VXALTP</td>
</tr>
<tr>
<td>FANTECHI</td>
<td>N</td>
<td>VAXPI, IPIVAXIN</td>
</tr>
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<td>VXALFB, CERN.VXALFB, CRVXALFB</td>
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<tr>
<td>RFZ VH</td>
<td>N</td>
<td>GEN</td>
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Function(s) in the experiment:

Date:
STATUS OF NEWS AT CERN

- THE NEWS FILE BASE ON UH HAS BEEN RATIONALIZED.
- TWO EXECS ALLOW AN EASY INSERTION AND RETRIEVAL OF NEWS
- ALSO FROM BITNET IS POSSIBLE TO GET NEWS ITEMS.
- ON XCRNA THE SAME COUPLE OF COMMANDS WILL BE AVAILABLE SOON

- ON BOTH SIDES THERE WILL BE THE POSSIBILITY OF INSERTING NEWS DIRECTLY ON THE OTHER MACHINE.
- ON BOTH SIDES IT WILL BE POSSIBLE TO SEND THE MESSAGE ALSO TO SOFTWARE REPRESENTATIVES.

TO RETRIEVE NEWS:

    type AURHNNEWS (On UH executed automatically at login)

TO ADD NEWS

    type ADDNEWS and you are asked for:
     - name of the file containing informations
     - subject
     - expiration date (default now + 15 days)
     - if to send to the other machine
     - " " to reserved
Status Report of Graphics Working Group

1) Work in Graphics Group

ii) GUS - 3D

1) Work in Graphics Group

1) Status of existing graphics programs

2D: Drevermann plots
(Various projections & transformations to disentangle difficult areas)
Working on low-level terminal
Using GUS (Level 1B)
Being put into the skeleton of the reconstruction program (JULIA)

3D: Wisconsin program
Based on PROS
Running on PDP 11

") combine the two with GUS 2D - 3D
2) **Basis for combining 2D and 3D into one program using GUI2D/3D:**

- add graphical objects into the reconstruction data structure

**Main ideas:**

- add "parallel" graphical leads to existing coordinate, store-, tool-banks, containing additional information needed for graphics (e.g., polygons for a whole)  
- various projections in order to avoid recalculations

- generalised primitive to allow for various representations, e.g.
  - marker will never be *
  - square will differ in size (function of the distance to the vertex)

- use the GUI concept of bundles to allow dynamic change of attributes without re-drawing things
- allow for different views of the same object (global + zoomed, 3D with 2D-projection etc)

* actually being built into the reconstruction skeleton
* gradually translate 2D and add 3D using ETO-views
* You will need any implementation of
  bus
  of the mykl level (normally 2B)
  (used or unused) according to the
  functionality you want

3) New interface (for the analysis environment)

desired functionality:

- menu (will bus)
- command (will use on non-graphic terminals)

make to hide difficulties from
(editable) non-expert user

language should be close to the data structure

"draw all lines with momentum > const. in red"

look at existing new - line places

UI/Shell Group
PMPA Delphi...
collecting information
updated guidelines till the end of the year

**News**

**LYNX:** DEC graphics workstation

- $200,000 list
- 2 µprogrammed-like slice processors (Euwe-Sell) for graphics
- 3 µwar processors
- shared memory between $200,000 + graphics per
- speed: 500 x points at 4 coordinates/sec

- anti-aliasing
- depth - graining
- texturing

- systems: LNX or UNIX
- networks: NFS or Ethernet

sold as FY

price: approx. $200,000
Implementation:
- Poor code: buggy and not documented
- Performance problem
- New revision January 77

2.0

APPLICATION

Set up Scenario

DD4

DD2

SUCCESS

DATA

BUILD

RESULTS

NOTES
- **GSN GSN 7.4, level 2B**
  - IBM (MHS UM/ENS)
  - DEC
  - Apollo
  - Source code + installation
  - **270 kDH**

- Drivers for
  - Tektronix 4014, 4107, 4109
  - HP plotter HP-GL (7475, 7550, 7585, 7586)
  - Versatek plotter V80 & Versaplot

- Skeleton 2D driver
  - 3D skeleton or model as soon as possible

- Apollo GSN 2D and 3D as soon as available (1st quarter of 87?)

- On VORTEX data machines as soon as available

- Software update
  - Install the DIS within 6 months
  - Update as to errors
  - At least once/year

- Additional products
  - 35% on single (additional) GSN 7.4 line (e.g. Linux)
  - 50% on source code price of all other products
  - 60% on object code price
A

object code license with 25% reduction

GUS GRAM 2D for IBM or VAX
work, Apollo

\[ 13,250 \text{ DH} \]

\[ 5,350 \text{ DH} \]

3D for IBM or VAX
for main, Apollo

\[ 25,000 \text{ DH} \]

\[ 14,500 \text{ DH} \]

Optional installation

\[ 5,000 \text{ DH} \]

Kronos 2D or 3D in object code
as for CERN

- Drivers in object + source code
  as for CERN

- Skeleton in source + link routines

- Upgrades and additional drivers
  as for CERN

"EMBEDDED LICENCE"

\[
\begin{align*}
\text{for } 0-129 \text{ licenses} & : 20\% + \\
\text{for } 130-499 \text{ licenses} & : 15\% + \\
\text{for } \geq 500 \text{ licenses} & : 5\% \\
\end{align*}
\]

\[ \text{IBM, DEC 28,000 DH} \]

\[ \text{Apollo, DEC 14,500 DH} \]

- Additional products: as for CERN
Situation of 3D device drivers

RD 55FC existing

$15,000 \text{ DM} (-50\%)$

Existence with GMZ (?)

Apollo 2N 530D

DD 2D GSR

$\rightarrow$ DD 3D GSR

NEGATEX

2 possibilities

- [HEP] - written who?

- written by GMZ

price \to \text{ 100,000 DM}

So to paid by TERNATE?

test?
Last proposition:

Electrographics (= TEMPLATE + NEGATEK)

pay the 100,000 Dm + owns the driver

The institute interested pay 3-4,000 Dm (?)

Pay work if n > 15 institutes interested

delphi: n < 5

AEPAT: CERN

Main

Imperial College

LAL

Marseille
Making a library shareable
Installation of a shareable library

A library: Collection of object modules that form a package used by several applications.

Shared and Installed: Single copy for executable code.

Diagram:

- [Diagram showing library and dependencies]

A --- Library --- B
How to build it?

Give the shared image the structure:

Cluster 1

→ Applications independent of release

Cluster 2

→ Increasing size of CODE
Why?

Save space:
- On disk
- In memory

(For UPI ~ 200 blocks)

Applications independent of releases
- No re-linking of applications after a release.

Reduce link time of applications.
(For UPI ~ 20 sec VAX 750)

Reduce machine load.
- Swapping
- Working sets

Features
- Part of the package private
- Use of other shared libraries without local copy

Restriction
- Access to non-shared library
  → private local copy in the shared library

(Non-shareable modules allowed
  → duplicated in each application)
1. Collect object modules
   → package
   Avoid non related modules.

   (up to vms 4.4 use /notraceback compiler option)

2. Build a map
   → { full set of entry points
       | all referenced common blocks
   $ link /noexe /map=mylib.map /share -
       /notraceback module1.obj, module2.obj, ...

3. Select all public entry points → jump table
   Macro file:
   .title mylib vectors
   .psect $xpers, shsr, exe, rd
   .transfer MODULE1
   .mask
   jmp L^MODULE1 + 2
   .transfer MODULE2
   .mask
   jmp L^MODULE2 + 2
   .END
4. Select all common blocks
   → build optim files
   • Override default SHR attribute given by
     compiler to all common blocks.

   psect_attr = COMMON1, Noshr
   psect_attr = COMMON2, Noshr

5. Build linking optim file
   → ordering program sections

   cluster = TRANSFERS,, Mylib_vectors
   cluster = commons
   Collect = commons, Common1, Common2

6. Build Image

   $ link /Notace /Share /exe= Mylib.exe
   -modules1, modules2, mylib/opt,
   -mylib-commons/opt

Applications Installation

$ install = $install /command
$ install add mydisk[:[] mylib /share/exec
$ define mylib mydisk [:[] mylib
$ cre mylib.oef
mydisk [:[] mylib.exe /share
$ link myprog, mylib/opt
Getting started

Registration: New scheme standard soon available (CERN). Registration will be done through group representative (avoid troubles).

Profile exec: Active the execution of group profile (GAROF EXEC) in your profile. Necessary to display unseen ALEPHNEWS and GLOBALV INITIALIZATION.

GROUP disk PUBXU 127 is accessed at logon time by CERN standard profile.

Information: New users FIND VM Help ALEPH.
ALEPH HELPS STRUCTURE ON G-DISK.
**ALEPH Disks**

All ALEPH disks (mini and maxi) belong to userid PUBXU.

**MINIDISKS:**

<table>
<thead>
<tr>
<th>CUV</th>
<th>NICKNAME</th>
<th>Responsible/Update</th>
</tr>
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<tbody>
<tr>
<td>187</td>
<td>GENERA</td>
<td>FANTECHI / REYROLLE</td>
</tr>
<tr>
<td>196</td>
<td>MCARLO</td>
<td>RANJARD</td>
</tr>
<tr>
<td>198</td>
<td>TPC</td>
<td>SCHLATTER</td>
</tr>
<tr>
<td>200</td>
<td>RECONS</td>
<td>BUNN + ?</td>
</tr>
<tr>
<td>201</td>
<td>ADM.DEV</td>
<td>FISHER</td>
</tr>
<tr>
<td>202</td>
<td>ADM.EXA</td>
<td>FISHER</td>
</tr>
<tr>
<td>210</td>
<td>DBASE</td>
<td>PUTZER</td>
</tr>
<tr>
<td>300</td>
<td>NEWS</td>
<td>everybody</td>
</tr>
</tbody>
</table>

Minidisks maintenance using INSTALL except for NEWS.

**MAXIDISKS:** (Today)

<table>
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<th>NICKNAME</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>401</td>
<td>MAXI 1</td>
<td>75</td>
</tr>
<tr>
<td>402</td>
<td>MAXI 2</td>
<td>75</td>
</tr>
<tr>
<td>403</td>
<td>MAXI 3</td>
<td>300</td>
</tr>
</tbody>
</table>

Used for medium term storages of big files.
For the time being, no expiration date for maxidisk files. Needs for a policy to increase maxidisk use efficiency.

- Use USERID as Filetype to increase security.

- We can define 2 classes of maxidisks with files durations.
  (1 month and 1 week)

An algorithm has been tested to manage the maxidisks in such a way.

However, users are recommended to use SPACE TEMPORARY disks (available from SPACE ADDTEMP command) up to 10 cyl. until the next monday. For scratch files, it is better than using maxidisks.

Use also SESSION TEMPORARY DISKS.
All ALEPH disks have a nickname in the GIMEGRP NAMES file NEWS:

NEWS stored on disk PUBXV 300 everybody can add a news file using ADDNEWS (R. Fantechi) and READ using ALEPHNEWS

These execs are interfaces to CERN NEWS.

Content of the general disk:

- HELP Files
- GROUP PROFILE
- GROUP NAMES (mail lists)
- GLOBALV INITIALIZATION Files
- Tools (execs)
- Bos Libraries (OLDLIB, TXTLIB)
ALEPH GLOBAL VARIABLES

why?
- customize environments seen from exec's
  * minidisk/names of libraries/library lists/
  * commands

- Information collected in a single
  file to be arranged by each
  VM node ALEPH representative.

- makes exec transportable with a
  minimum number of changes.

how?

DEFINITIONS OF GLOBAL VARIABLES NAMES
IN FILE ALEPHSET EXEC

ALEPHSET generates:

  ALEPHSET EXEC

  GROUP GLOBALV this one
  used at logon time for init.

  TRANSPARENT TO USER.

  One people responsible for changes.
The procedure works well for Monte Carlo GALEPH (at CERN VM and FRCPN11 nodes). May be used for other purpose.

**ALEPH SERVER**

Service machine running disconnected.

**USERID**: ALEPHSRV

Can be used from outside VM labs to retrieve files at CERN.

**TYPE** TELL ALEPHSRV (AT CERN VM) **CMD**

**CMD** is NEWS MENU or ITEMS

LIST any minidisk

$HOME$ files.

BATCH & HELP.

- Files are always sent to remote user

**READER** virtual.
CPU TIME not yet charged to groups under VM system.
Charged at begin 1887.
TO : Aleph programmers
FROM : Paolo Palazzi
ABOUT : ADAMO courses

CONTENTS : the role of data design in software engineering;
the Entity-Relationship model (ER);
  - data structures
  - operations on data
  - validation
coupling to the data flow diagrams of SA;
introduction to the ADAMO system;
running ADAMO tools on the VAX;
programming with the TTable Package (TAP);

STYLE : learn by example, using:
  - JULIA/ECAL by Mike Green
  - FASTBUS by Richard McClatchey
  - PRODES by Julian Bunn

MATERIAL : ADAMO documentation;
ADAMO application notes of the examples used.

PRACTICE : modelling applications of interest to those who will attend;
programming additional output for PRODES.

TEACHERS : the ADAMO team + authors of the examples

COURSE# : 1 2

WHEN : Dec 8, afternoon Jan 6, afternoon
Dec 9, whole day Jan 7, whole day

WHERE : CERN Royal Holloway College,
        London, UK

CONTACT : PALAZZI@VXCRNA GREEN@VXCRNA
ALEPH Collaboration  
CERN - European Laboratory for Particle Physics  
CH-1211 Geneva 23, Switzerland.  

ADAMO Application Note 0  
November 11, 1986  

The ADAMO application notes  

The ADAMO application notes are a series of documents that illustrate the use of the ADAMO data management system in specific applications. Each note consists of a cover page, a short introduction, a collection of diagrams and design documents produced with or for ADAMO, and possibly some FORTRAN code using the ADAMO/TAP and other relevant information.

This document contains a list of such notes, and the cover and introduction for each of them. These documents contain many diagrams, and for the moment it is not practical to make them available electronically. You can obtain copies from P. Palazzi, telephone +41-22-833897, em PALAZZI@VXCRNA.cern  

1 - GEANT (3.07) Volume, material and media data structure  
by S. M. Fisher  

2 - Understanding Graphic Standards with ADAMO: GKS-2D  
by M. Boano, S. M. Fisher, P. Palazzi, W. R. Zhao  

3 - PRODES, a tool to analyze and describe a FORTRAN program  
by J. Bunn  

4 - JULIA/ECAL, cluster finding and track matching in theAleph  
reconstruction program  
by M. G. Green  

5 - FASTBUS Initialize/Verify  
by R. McClatchey  

6 - GALEPH/ITC, rewrite simulation of ITC using the ADAMO/TAP  
by S. M. Fisher  

7 - TAPELIB, a magtape allocation database program  
by R. Beuselinck  

8 - Using ADAMO to design and build ADAMO  
by R. Brazioli, S. M. Fisher, P. Palazzi, W. R. Zhao  

9 - Manage PARTITIONS in the Aleph data acquisition system  
by J. Harvey, S. Q. Tang, W. R. Zhao  

10 - NADIR, the New Aleph DIRectory  
by Z. X. Qian, F. Blin, W. G. Moorhead, P. Palazzi  

11 - AMSEND, a utility to send electronic mail within Aleph (in preparation)  
by V. Emiliani, R. Fantechi, P. Palazzi, Z. X. Qian  

12 - The Aleph Detector Data Base (in preparation)  
by A. Putzer