Andrew Consortium
School of Computer Science
Carnegie Mellon University

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The Andrew View Newsletter

Highlights in this Issue

My Own View - Funding Andrew

Wilfred J. Hansen, Director

> *Why is it that left-wingers, the traditional party of change, comprise such a large part of the environmental movement, a movement dedicated to preserving the environment against change?*

I don't know. I do know, however, that the environment in which Andrew lives is changing rapidly. For example:

o Andrew itself has been changing with its:
- conversion to C++
- new drawing editor
- new printing architecture
- numerous new platforms
- many modest improvements
- thousands of bug corrections

o Compound document architectures are realizing wider understanding and acceptance, forcing their own evolution. OLE and OpenDoc continue to develop, but are rapidly being overtaken by HTML.

o New computer industry funding models are being explored. Cygnus is selling service for free software. Netscape is selling servers and giving away clients. NetBill and other Internet purchasing facilities are making possible features which allow incremental charges for documents.

With all these changes, it is a good time to consider the funding model for the Andrew Consortium. In the past we have been funded by grants from members and have given away our C source code. The new system, now in C++, could be distributed in some other manner. We are considering various combinations of these plans:

a) Give away the source code as before.

b) Sell binary versions.

c) Give away binary versions and charge for documentation.

d) Give away binary versions which send us payment--via NetBill--when they are installed.

e) Give away binary versions which send us a small payment each time they are started, or as each document is fetched.

f) Ala Netscape: Give away evaluation copies of the client software, but charge commercial and government installations for licenses.

g) Restrict distribution of sources to the members of the Consortium.

h) Make sources available to non-members for a fee.

What do you think? Your comments on these proposals can make a difference. Write to me at the Consortium address above or as

Fred.Hansen@cmu.edu

In a few weeks, we will distribute executable Andrew applications. During the interim pending your suggestions, these will be distributed with permission to use and copy, but without permission to charge for copies.

Left-wing or right wing, we all need the Andrew environment.

Software Developments and Features

Wilfred J. Hansen, Director and Rob Ryan, Research Programmer

Color Image Enhancement Color images will look better in Andrew 7.4 because we have implemented both dynamic color allocation and dithering. Formerly, Andrew images were displayed with nearest fit colors chosen from a "color cube" of 5x5x5 colors. These almost always looked poor because the fit between desired and allocated colors was not close. With dynamic color allocation, colors are allocated to fit the images actually being displayed. When an image being added to the display requires new colors, the colors for all images are reallocated to display them all as can best be done.

Dithering, an option, does not display colors exactly, but varies the colors of adjacent pixels so they appear to have the desired color. (Netscape, for example, uses only this mode, dithering with colors chosen from a cube of 6x6x6 colors.) Dithering is most valuable when used with a color cube, but can also help when using the dynamic color allocator.

There is also a 'direct' color mode where colors displayed are exactly those in the image. This will fail unless all the images to be displayed at any given time have been pre-processed to utilize a given set of colors.

Widgets Basic driver software (the "underware") for widgets has been implemented enough to build a few widgets: buttons, check boxes, and radio buttons. On the dataobject side, the driver is a very general package for storing attributes of objects. Attributes can have names and types and they can be read from, or written to, files. The value of an attribute can be stored directly in the file or the value can be a pointer to another file containing the value or a function to compute the value.

On the view side, the awidgetview object is a general driver which fetches certain attributes from its dataobject and uses them to display an image. The basic notion is that the dataobject supplies a figure which awidgetview displays. For various particular widgets, the dataobject can supply the figure directly or can provide code to compute the figure contents based on other attributes.

Web Browser Instances of the new widgets have now been incorporated into htmltext, the Andrew webpage viewer, in order to display HTML "forms" in their full glory.

HTML Conversion In the interest of a better html editor, htmltext and ez2html have been modified so that arbitrary insets can be converted to gifs. The first document so converted is *http://www.cs.cmu.edu/~wjh/go/Japan.rules.html*.

Documentation Project

AnnMarie Zanger, Assistant Director

During 1996, the Andrew Consortium will improve the usability and quality of hundreds of documentation files created for the Andrew User Interface System.

Over the years, numerous documents have been written which describe various aspects of Andrew. Some of these documents are complete; others are not. In some cases, informational text on a specific function within the system does not exist at all. In other cases, documentation relates to aspects of the system which are obsolete. Most importantly, much of the documentation has not yet been updated to reflect the availability of Andrew in C++. To rectify all of this, we are reviewing, editing, classifying and cataloging these materials so that both programmers and casual users of the system can more easily answer their own questions about Andrew.

Our goal is to create the "Andrew Documentation Set" containing:

I. Overview of Andrew Documentation
II. Administrator's Manual
III. User's Manual
IV. Programmer's Manual
V. Developer's Manual

Exactly how the Consortium will offer the documentation to Andrew users is still under discussion (see Fred's "My Own View" article above). A number of options are being built into our work though. The reference set could be viewed on your computer screen with electronic links among the documents. The electronic files could be part of the Andrew sources in the user's destination directory, as has been the practice in the past. For those who prefer using hard copy, the manuals could also be published in paper form. Fees or membership requirements may apply to any or all of these offerings.

Influence the outcome! Your questions and comments regarding the documentation plan are welcome. Please send email to: *annmarie@cmu.edu* so that your voice is heard.

Platform Plan

Rob Ryan and Susan Straub, Technical Staff

Many of you have been asking about upcoming Andrew releases. Here is our answer.

At the beginning of 1996, the Andrew Consortium devised a platform plan which established four major goals:

1. Release Andrew7.3 in C++ to our in-house clients at Carnegie Mellon University's School of Computer Science (see article below).
2. Create one new Andrew7.3 port (Solaris) and release it to the same CMU group (see article below).
3. Create Andrew7.4 by porting to the most recent operating systems for six platforms (RS, HP, SunOs, Solaris, Pmax, Linux).
4. Release Andrew7.4 applications in executable form.

The first two goals have already been successfully completed; the third and fourth goals are expected to be completed by mid-year. With this, users at-large for the first time will get a glimpse of the Andrew7 series in C++, previously available only to Consortium members.

A list of the new features, insets, etc. and an accounting of the major visible changes between V6 and C++ will be provided with the Andrew7.4 binary distribution announcement. Watch the *info-andrew@andrew.cmu.edu* distribution list or the *comp.soft-sys.andrew* newsgroup for further details.

Upgrade for CMU's Computer Science Community

Susan Straub, Technical Staff

The Andrew Consortium has upgraded Andrew software available to the Carnegie Mellon University School of Computer Science to Version 7.3 written in C++. This affects all applications, including:

ez - wordprocessor
messages - mail/bboards
bush - directory browser
help - help browser
figure - drawing editor

table - spread sheet

The first step in this upgrade was a release to beta early in March 1996. The release to omega occurred on Friday, March 29th, 1996 at 1 AM. Upgraded platforms included the sun4_413, pmax_ul43a and rs_aix32.

While previous Andrew releases on the CMU campus have always been written in C, this version offers programmers access to the C++ source code. Users will also find Andrew7.3 more advanced in terms of HTML support and scrolling.

Andrew7 Runs on Solaris

Susan Straub, Technical Staff

At the same time that CMU's Andrew7.3 upgrade took place, a new Solaris port for the Andrew7 series was also released. This means that Solaris users at Carnegie Mellon can now also experiment with the C++ version of Andrew.

Announcing Andrew ELF Support for Linux Users

Terry Gliedt, Contributor

Thanks once again to our fearless Linux contributor, Terry Gliedt, there is a complete, new series of packages of the

Andrew User Interface System

available for Linux machines. Get your copy via anonymous FTP from either of these two places:

1) sunsite.unc.edu in pub/Linux/X11/andrew
2) ftp.andrew.cmu.edu in pub/AUIS/bin-dist/linux/elf-format

Those with web browsers can also go to the Andrew Consortium's homepage at *http://www.cs.cmu.edu/~AUIS* and use the link for "downloading the executables".

This offering is a refresh of the earlier release, still based on AUIS6.3.5. This version contains a few fixes, but its primary purpose is to make an ELF-format version of Andrew available. The full 40MB of compiled programs and data are grouped into several logical "packages". These should run on any Linux system using XFree3.1 (Slackware 3.0 with a 1.2.13 Linux kernel was used to create them).

The software was configured for the novice community. It comes in tar files varying from 0.8MB to almost 4.0MB in size. Everything is based on the word processing package and only requires about 4.5MB after being extracted.

The set of packages are:

auis635L1-wp.lsm	Summary for EZ - the Word Processor
auis635L1-wp.tgz	Contains textviews, help, image, figure, raster, typescript, pipescript ...
auis635L1-src.lsm	Summary for EZ - for Source Code Development
auis635L1-src.tgz	Contains all the srcviews, bush... (requires -wp package)
auis635L1-mail.lsm	Summary for Messages - MIME Mail Interface
auis635L1-mail.tgz	Contains messages et al (requires -wp package - and contains no support for AFS, AMDS, or White Pages)
auis635L1-full.lsm	Summary for A Complete Andrew Distribution
auis635L1-full.tgz	Contains the entire AUIS tree, including all the ATK items, development files, and documentation. It replaces the previous -dev and -doc packages. This file is ONLY available at ftp.andrew.cmu.edu. The tar file is over 9MB is size and requires 40MB of space.

For further information, please contact Terry via email *tpg@cans.com* or on the web at *http://www.cfa.org/~tpg/*. Your questions or comments may also be sent to *info-andrew@andrew.cmu.edu.*

FACTS ON FILE

Andrew is...

Compound Document Architecture
Word Processor
Drawing Editor
Mail /Bulletin Board Reader, Writer, Manager
Spreadsheet / Table Editor
Widget Set
Application Builder
Scriptable
In C and C++
For X11

...With a consistent, integrated user interface so you can create compound documents containing pictures, words, tables, graphs

...and more.

The ***Andrew User Interface System*** is an integrated set of tools that allow you to create, use, and mail documents and applications containing typographically formatted text and embedded objects. ***AUIS*** or ***"Andrew"*** has three principal components:

> The ***Andrew User Environment (AUE)*** is an integrated set of applications beginning with a 'generic object' editor (*ez*), a help system, a system monitoring tool (*console*), an editor-based shell interface (*typescript*), and support for printing multi-media documents.
>
> The ***Andrew Toolkit (ATK)*** is a portable user-interface toolkit. It provides a dynamically-loadable, object-oriented environment wherein objects can be embedded in one-another. Thus, one could edit text that contains not only fonts and styles, but also embedded raster images, spreadsheets, drawing editors, equations, simple animations, etc. These embedded objects could themselves contain other objects, including text. ATK is an open system so programmers can create new objects that can be embedded as easily as those system-defined objects.
>
> The ***Andrew Message System (AMS)*** provides a multi-media interface to mail and bulletin-boards. AMS supports several mail management strategies and implements many advanced features including authentication, return receipts, automatic sorting of mail, vote collection and tabulation, enclosures, audit trails of related messages, and subscription management. It also provides a variety of interfaces that support ttys and low-function personal computers in addition to the high-function workstations.

Andrew-Ready Platforms

Andrew has been used successfully on (at least) these platforms:

IBM---RT AOS 3.4, RT AIX 2.2.1, RS/6000 AIX3.1, PS/2 AIX1.2
SUN---Sun3 3.5, Sun3 4.0, Sun4 4.0, Sun3 4.1, Sun4 4.1, Sun4Mach, Solaris
DEC---Vax Ultrix 3.1, Vax Ultrix 4.2, Vax BSD, DEC MIPS, Pmax Mach
Other---HP, SCO I386, SGI IRIX 4.0, SGI IRIX 5.2, Apollo, Macintosh II, MacMach, 486 Mach, Telmat, Linux

Remote Demo Service

Try out Andrew from your own work station via the Remote Andrew Demo Service. You will need a host machine on the Internet running the X11 window system. You will be able to compose multimedia documents, navigate through the interactive Andrew Tour, and use the Andrew Message System to browse through a few of CMU's four thousand bulletin boards and newsgroups.

To get started, simply run the following command on your machine: finger @atk.cs.cmu.edu (128.2.203.218). The remote demo system will give you further instructions.

Accessing the Source Code and Binaries

Sources and binaries are available online via anonymous ftp from: ftp.andrew.cmu.edu (IP: 128.2.232.154) in pub/AUIS/. See the README file.

Other ftp sites are: ftp.x.org (IP: 192.112.44.100) and its clone sites (see pub/R6untarred/contrib/lib/auis-6.3). On the nationwide AFS file system, Andrew is available in: /afs/cs.cmu.edu/project/atk-ftp.

Binary distribution packages for subsets or all of Andrew are available for the following system types:

RS/6000
Sun 4C Sparcstation
HP 720
DEC Pmax
Linux

Source and binary tapes are also available by mail (see "Services and Offerings-Andrew on Tape" below).

Membership in the Andrew Consortium

The School of Computer Science at Carnegie Mellon University has established the Andrew Consortium to maintain and enhance the Andrew User Interface System (Andrew).

The Consortium offers outside organizations the opportunity to help shape the future of the system. Participate in the development of Andrew, utilize the latest advances by our technical staff, and undertake commercial exploitation with the active cooperation of the developers.

The overall efforts of the Consortium staff are directed toward:

+ increased quality in existing media,
+ enhancements, including a direct manipulation interface builder,
+ embedding of applications such as generic X applications,
+ increased potential for transition from Andrew to successor systems
+ inter-operability with standards such as Posix, Motif, C++, OLE, and SGML.

The Consortium makes its most up-to-date release, currently Andrew 7 in C++, available only to members. The current publicly available Andrew release is 6.3, released via anonymous file transfer over the Internet.

Membership in the Consortium is offered to organizations interested in exploiting Andrew technology within their operations or products. All members support the consortium as it:

+ Enhances, maintains, and distributes the Andrew software base.
+ Conducts an annual meeting to review progress and set priorities.
+ Distributes a quarterly newsletter
+ Monitors the info-andrew mailing list.

We offer memberships at four levels: Participating, Full, Contributing and Associate. You are cordially invited to join us.

Please contact our Director, Fred Hansen <wjh@andrew.cmu.edu> if you would like to discuss the opportunities that the Consortium has to offer.

Consortium Services and Offerings

The following materials are provided by the Andrew Consortium at Carnegie Mellon University for internal educational use only and may not be reproduced for sale or distribution. Please mark your selections below:

ANDREW IN PRINT

_____ **The Andrew User Guide** US$25

This printed and bound guide, offers a comprehensive description of how to use Andrew applications and insets. Chapters cover ez, help, typescript, messages, console, raster, figure, table, and many other facets of the system. (130 pages)

_____ **Selected Technical Papers on Andrew** US$30

This set represents a selection of some of our most handy references on the Andrew system. (250 pages)

A Guide to Andrew (User Tutorial)
Ness: An Extension Language for the Andrew Toolkit
Programming with the Andrew Toolkit
ADEW: The Andrew Development Environment Workbench
Createinset: Generate Source Files for a New Inset
The Andrew Message System

_____ **Andrew Technical Conference Proceedings** US$20

The Andrew Consortium sponsors its own technical conference each year. The proceeding papers from the 1993, 1994 and 1995 events explore topics such as: HTML Editors, Widgets, Application Developer's View of Andrew, Smart Styles, Web Browser, Compound Document Architectures. (85 pages)

_____ **Programming Documentation on Andrew** US$95

This package represents a complete set of programming documentation on the Andrew system, sold in hard copy form. (1250 pages)

ANDREW ON TAPE

_____ **Public Source Tape (6.3 in C)** US$150

Want the source code on tape? Here it is, ready to use on your Andrew-compatible platform.

_____ **Private Source Tape (7.4 in C++)**

______ US$350 for business use________________ Name of designated user & company

______ US$250 for personal use ________________ Name of designated user

Purchase our most up-to-date version of the source in C++ and take advantage of the latest programming advances made by our technical staff. (This tape must be designated for the use of one individual only.)

_____ **Binary Distribution Package (7.4 in C)** US$100

This tape provides you with everything you need to get Andrew up and running on your RS/6000, Power PC, Sun 4C Sparcstation, Sun Solaris, HP 720, DEC Pmax or Linux machine. Files include the source code, word processing, documentation, and mail for MIME-compatible messages.

If you are ordering ANDREW ON TAPE, please specify format:

_____ 1/4" streaming tape (150 MB)
_____ 8 mm DAT tape (2.3 GB)
_____ 8 mm HP Iotamat format

US$ _______SUBTOTAL

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Contact Information

Andrew Consortium
School of Computer Science
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213-3891

Phone: (412) 268-6710
Fax: (412) 268-5571

Email:	subscriptions, info, orders --- info-andrew-request@andrew.cmu.edu bug reports --- info-andrew-bugs@andrew.cmu.edu discussion forum --- info-andrew@andrew.cmu.edu
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