Andrew Consortium
School of Computer Science
Carnegie Mellon University
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The Andrew View Newsletter

Highlights in this Issue

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*

Newsgroup: netnews.comp.soft-sys.andrew@andrew.cmu.edu

Remote Demo: finger @atk.cs.cmu.edu

Archive Access: ftp.andrew.cmu.edu: pub/AUIS/

Webpage: http://www.cs.cmu.edu/afs/cs.cmu.edu/project/atk-ftp/web/andrew-home.html

My Own View - The World of Widgets

Wilfred J. Hansen, Director

This term I have amused myself by teaching the Software Engineering project course in the School of Computer Science here at Carnegie Mellon University. The field of software engineering deals with problems that arise when programs are large, when they involve many programmers, and when they exist over long periods of time; many examples may be taken from the history of the Andrew system.

Consequently, the focus of Software Engineering 15-413 is---you guessed it---Andrew, or more specifically, Widgets for Andrew. The highest priority is production of those widgets needed to build the "forms" facility for the Web Browser project: text entry field, push buttons, and radio buttons. This approach has tied in very nicely with both our own continuing internal development of widgets and our work on a web browser for Andrew. The course has given us the opportunity to try a number of approaches we otherwise could not have.

The 38 students in the course are organized into two "companies," each developing a set of widgets. Rather than have them build individual widgets, we've taken the approach of building a general widget driver framework to make widget construction easy. Each company is split into four teams with specific responsibilities:

> *Integration Team* - manage the overall system organization, conduct system testing, and complete the documentation.
>
> *Dataobject Team* - construct a generalized dataobject which manages a collection of "attributes" for each widget.
>
> *View Team* - construct a generalized view driver which fetches attributes from the widget dataobject and makes the corresponding widget appear on screen.
>
> *Widget Team* - write the resource files that contain the attributes needed for each particular widget.

The students spent the first half of the semester learning about Andrew and learning enough software engineering basics to be able to handle the project and design the software. Implementation and system integration are taking place during this second half of the course.

What have I learned from this experience, you ask?

In light of my experience with the development of the Andrew system, it is interesting to read and talk about formal software engineering methods. Some would have been of little use to us when the system was being built, but others could have contributed mightily to a more easily maintainable Andrew.

It seems to me that smaller teams could have done the job faster. But then again, one of the most important lessons to be learned from a software engineering project course is how to work together in a group. The students have struggled some, but are really learning these lessons well. I have high hopes for the successful completion of a rudimentary widgets set from which we can further build.

News from the Consortium

Susan Straub, System Administrator

CONSORTIUM CONVERTS TO C++! Since early 1995, the Consortium staff has been making full use of Andrew7.2 in C++. At the same time, Consortium members are taking full advantage of this latest version of the software. Members who have converted to using version 7.2 on at least some of their computers include IBM and BellSouth.

If you are a member who would like to install Andrew7.2 at your workplace, please contact our system administrator, Susan Straub, at:

tel: (412) 268-7326
fax: (412) 268-5571
email: susan@andrew.cmu.edu

Please provide information about the system type(s) on which you will be installing Andrew so that we can guide you to the correct files.

If you are not already a member and are interested in Andrew7.2, we encourage you to join us in our efforts to ensure that the system continues to be maintained and made available. If you would like to know more about becoming a member of the Consortium, please contact our assistant director, AnnMarie Zanger, at:

tel: (412) 268-6710
fax: (412) 268-5571
email: az28@andrew.cmu.edu

Software Developments

Andy Plotkin and Rob Ryan, Technical Staff

Have You Picked Up our Latest Bug Fixes? If you are among the few who are using both versions of our software, Andrew6 in C and Andrew7 in C++, a patch is ready and waiting for you via ftp. andrew.cmu.edu in pub/AUIS/patches/official/patch.633.

This patch fixes a bug in the Andrew6 version of "figure" which prevents it from reading figures created with Andrew7. This latest fix will assist in your work on documents containing figures.

Printing Status The PostScript printing system prints all the standard Andrew objects (text, figure, table, raster) and handles insets such as image, ps, null, link and eq, as reported previously. As planned, it now also handles special text features such as table of contents, index (invoke by setting print options) and full-page text layout (although this is still in process of being "road-tested"). The system is also capable of page layouts that adapt to the page size.

You can get help when using the system by calling up the print and preview functions, and print setup dialog box. Help files will be added for typescript, messages and any other text-based applications that have their own print/preview options.

Argument Lists Work on the infrastructure needed for widgets has begun. In particular a mechanism for interfacing functions of various languages has been implemented and support for windows suitable for menucards has been added.

Enhancements in the Works

The Linux Line

Terry Gliedt, Consultant

The Linux version of Andrew continues to keep attracting new users. Feedback from these users, new and old alike, is that the tools quickly become popular once installed. Continuing efforts to improve Andrew are greatly appreciated.

The one recurring complaint from Linux users about Andrew, however, is that EZ, our "word processor", does not contain all of the features typically available to desk-top publishers. Regrettably not, but typically the new user is willing to forego things like WYSIWIG editing in order to reap the advantages of Andrew’s compound document architecture and tools.

A re-release of the Andrew6.3 for Linux has been announced recently. This new Linux release was built with XFree3.1 (i.e. it is X11R6-based). This is becoming the standard version of X for Slackware and other Linux distributions.

The package types remain largely the same:

auis63L4-wp - basic word-processing system
auis63L4-src - tools for programming
auis63L4-mail - message system with MIME-compatible messages interface

The **-doc** and **-dev** packages which were offered in the last (L3) release have been dropped in favor of a package containing the entire system:

auis63L4-full - all of the above, including documentation and development files

This package is the full 40MB /usr/andrew tree that results when building Andrew. Because of its size, this 9MB file is only available at ftp.andrew.cmu.edu in /pub/AUIS/bin-dist/linux. The other three packages can also be found here and at sunsite.unc.edu in /pub/Linux/X11/andrew.

The WorldWideWeb Browser
Tom Neuendorffer, Consultant

Andrew's own Web Browser is slated for release to our users very soon. A demo of the browser, which can be integrated into your Andrew User Interface System to work much like Mosaic or Netscape, was presented to the entire Consortium staff in March. The multi-threaded WWW library code released by CERN just a few months ago is integrated into the browser. This object, combined with the HTML editors already available to users (see /pub/AUIS/misc), keeps the Andrew system in sync with the newest, hottest arena in the computer world---the Web.

Member Mentions

BellSouth and Andrew The Andrew User Interface System supports over 6000 users in viewing documents at BellSouth.

Over the past year, BellSouth and the Andrew Consortium have worked together to convert the Andrew code used at all of its sites to C++. BellSouth has been the impetus behind the Consortium being able to offer better functionality in the system when searching through objects, in particular, through pushbuttons and tables. The system is also now better able to handle table insets. Other fixes include rewriting functions to improve the positioning of text and objects within windows. There is also support for highlighting colored text in the editor. All of this, thanks to the urging of BellSouth, one of a number of valued members of the Andrew Consortium.

Features

AnnMarie Zanger, Assistant Director

Conference Planning The *1995 Andrew Technical Conference* will be held in Pittsburgh during September this year. Mark your calendars now!

The annual event will showcase the Andrew User Interface System and the WorldWideWeb, both as exclusive entities and as mutually-evolving vehicles, which improve users' ability to process information.

We have selected "Andrew and the Web" as the theme of this year's conference because Carnegie Mellon University and the Andrew Consortium are at the forefront of developments on the Web. However, we also want to hear about all of those fine programming inventions created using Andrew alone as a tool.

We look forward to a lively two-day mix of presentations, and as always, we have scheduled the Andrew Consortium Annual Meeting right in the middle. Look out for the formal Call for Papers to be released soon and please note the preliminary schedule below:

Date:	September 21-22, 1995 (Thursday and Friday)
Place:	Carnegie Mellon University Pittsburgh, Pennsylvania
Sessions:	"Andrew as a Tool": September 21, 1995 Annual Meeting - Andrew Consortium: Evening of September 21, 1995 "Using Andrew and the Web": September 22, 1995

Web Watch The Andrew Consortium homepage address has been slightly simplified. We have dropped the ":8001" out of the URL.

OLD ADDRESS:
http://www.cs.cmu.edu:8001/afs/cs.cmu.edu/project/atk-ftp/web/andrew-home.html

NEW ADDRESS:
http://www.cs.cmu.edu/afs/cs.cmu.edu/project/atk-ftp/web/andrew-home.html

This change resulted from the reassignment of various web servers at the School of Computer Science - Carnegie Mellon University, where Andrew lives.

The Andrew Consortium WWW homepage now links you into much more information from our FTP site. That information is also categorized more specifically for easier access. We hope that this helps you to quickly find the information you need.

Just for fun, here are some handy Web searching tools, one of which was designed at CMU. Happy searching:

Lycos - http://lycos.cs.cmu.edu/
- from CARNEGIE MELLON UNIVERSITY
Yahoo - http://akebono.stanford.edu/yahoo/
- from STANFORD UNIVERSITY
World Wide Web Worm - http://www.cs.colorado.edu/home/mcbryan/WWW.html
- from UNIVERSITY OF COLORADO
Web Crawler - http://webcrawler.cs.washington.edu/WebCrawler/
- from UNIVERSITY OF WASHINGTON

Spring has sprung and that means two things: gardening and taxes. For those of us who have filed for extensions and still have to trudge through this annual exercise, try:

Tax Forms from the IRS via Email - http://www.scubed.com:8001/tax/email.html
Taxing Times (Entire Tax Code and More) - http://www.scubed.com:8001/tax/tax.html

Be prepared for next year by reading:

The Tax Digest - http://www.unf.edu/misc/jmayer/taxdig.html

As a reward for all those who have finished their taxes, check out the green pages:

The Virtual Garden - http://www.timeinc.com/vg/
Garden Net - http://www.olympus.net/gardens/welcome.html
National Wildflower Research Center - http://www.onr.com/wildflower.html

Staff News *Andrew Plotkin*, a staff programmer at the Andrew Consortium for the past three years and a former graduate of Carnegie Mellon University, will be leaving us in April.

While Andy will be greatly missed, our congratulations are in order...he has just accepted a programming position at Magnet Interactive Studios in Washington, DC. Magnet is a multimedia design firm which produces games, multimedia business applications, and tables. He will be writing Macintosh versions of games, which is what he's always wanted to do. Andy is originally from our nation's capital and is looking forward to returning there.

Thanks for all of your hard work to improve the Andrew system and good luck in your new endeavors, Andy!

Terry Gliedt, one of our long-time associates, has finished his tenure as a consultant on Linux systems for the Andrew Consortium. This change is of his own choosing; we will surely miss his fine work for us here.

The news is not all bad though. Terry will be the new Director of Information Technology at a company called Communicating for America Network Services (CANS). He will be responsible for all of their WorldWide Web efforts on the Internet. Terry writes, "About a year ago I asked myself what I really wanted to be doing - and it was obvious to me. I wanted to do work on the Internet. I've been doing various kinds of work with networks at IBM and joining CANS allows me to continue that."

He will continue to work from home, but his email address has changed. He can be found at tpg@cfa.org or via CANS' webpage at http://www.cfa.org.

Thanks a million, Terry, for all your work on the Andrew User Interface System.

Employment Opportunities The Andrew Consortium has four programming positions open. As you know, the Consortium staff enhances and maintains the Andrew User Interface System (Andrew), one of the leading compound document environments. Andrew provides various applications based on these compound documents--word processor, mail/bboard system, help browser, drawing and font editor, directory browser--as well as a variety of embeddable objects--drawings, images, spread sheets, equations, etc.

We welcome your applications as:

1) Bug Czar (full-time staff) - Your responsibilities will include fixing bugs, managing bugs database, documenting system changes, testing the system, problem solving, and system development.

2) Developer (full-time staff) - You will design and implement new features in existing software, ensure the installability of the system, and communicate with Consortium members.

3) Programmer (summer full-time) - You will contribute to an on-going project such as the widget set, printing, electronic mail, or web browser.

4) Programmer (part-time from September 1995) - Your tasks will include working with our full-time staff to fix bugs and continue development work.

Please contact our director, Fred Hansen, at 412-268-6788 or via email <wjh@andrew.cmu.edu> if you are interested in any of these positions or if you would like to recommend someone to us.

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, 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. This volume includes the entire proceedings of the 1994 event, (Application Developer's View of Andrew, The Web Browser, Compound Document Architectures) plus highlights from the 1992 and 1993 conferences. (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 (7.2 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 (6.3 in C)** US$100

This tape provides you with everything you need to get Andrew up and running on your RS/6000, Sun 4C Sparcstation, 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

_______ Add US$20 per item for US express mail delivery
_______ Add US$25 per item for air mail delivery outside the US
_______ Add US$40 per item for express mail delivery outside the US

US$ _______GRAND TOTAL

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Phone ______________ Fax ____________ Email ________________

Please place your order by mailing the previous section of this form with your selections marked. Include a check made payable to Carnegie Mellon University and send it to the address overleaf.

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