

REUSABLE SOFTWARE COMPONENTS

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This column consists of our (attempted) yearly listing of reuse sources. As always, no recommendation or guarantee by this column is implied.

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## Ada IC

The Ada Information Clearinghouse has been providing free information about Ada for over a decade. Sponsored by the Ada Resource Association (ARA) and IIT Research Institute (IITRI), the AdaIC is uniquely positioned to bring you the latest Ada policies direct from decision-makers. By serving as a point of contact for other Ada resources, the AdaIC can alert you to important industry news and events. The AdaIC maintains close contact with the Ada community in order to obtain the latest information on a variety of topics, including implementation guidelines, compilers and tools, reusable Ada code, education and training, Ada successes, and lessons learned by software developers.

AdaIC Virtual Library: A comprehensive collection of Ada articles, reports, textbooks, videos, and CD-ROMS is available for searching or browsing on-line through the AdaIC Internet host. Users may access the Virtual Library via the AdaIC Internet host and access information citations, as well as full-text documents and reports, from their search results.

AdaIC  
4409 Forbes Blvd.  
Lanham, MD  
Phone: 301-918-1500  
[adainfo@iitri.org](mailto:adainfo@iitri.org)  
URL: <http://www.adaic.org>

Fax: 301-731-6329  
[drosen@iitri.org](mailto:drosen@iitri.org)

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ACES

The Ada Compiler Evaluation System (ACES) Version 2.1 is a collection of performance tests, test management tools, analysis tools, and assessment procedures that permit users to collect and analyze data on performance and usability characteristics of Ada implementations.

The ACES is a merger of the Ada Compiler Evaluation Capability (ACEC) and the Ada Evaluation System (AES). Version 2.1 of the ACES includes over 100 tests for language features introduced by Ada 95. Other improvements include the provision of default processing choices, selection of tests by performance issue, a set of default analysis reports, and a facility for the easy inclusion of user-defined benchmarks in the ACES test selection and analysis processes.

The ACES is available on the Internet as follows: Descriptive documents can be found at:
<http://www.adaic.org/compilers/aces/README.html>
These documents point the user to the "sw-eng.falls-church.va.us" host, which is no longer in service. The actual test suite files are available on request from the EDS Conformance Testing Center.

Phil Brashear
EDS Conformance Testing Center
4646 Needmore Road, Bin 46
P.O. Box 24593
Dayton, OH 45424-0593
(937) 237-4510

phil.brashear@eds.com

Ada and Software Engineering (ASE) CDROM

This third edition of the ASE CDROM product integrates with the first edition through the ASE Card Catalog, which is available as a hypertext document on this ASE CDROM.

For the Practicing Software Engineer:

- The "Software Engineer's Bookshelf" - a wealth of reference material, including the Software Engineering Body of Knowledge definition
- Best practices in Software Engineering
- Index of useful web sites (with 17,000+ hyperlinks to them directly from the CDROM)
- Systems Engineering Capability Maturity Model (SEI)
- Systems Engineering Capability Model (EIA/IS 731)
- Systems Security Engineering Capability Maturity Model
- Software Capability Maturity Model
- Software Acquisition Capability Maturity Model
- People Capability Maturity Model
- Jim Gray's Turing Lecture - A Dozen Information Technology Research Goals
- Hundreds of documents and tutorials on various topics in Software Engineering, including Domain Engineering, Reuse, Requirements, Object-Oriented Analysis and Design, Object-Oriented Programming, Software Development Methodologies (Waterfall, Spiral, Rapid Application Development), Formal Methods, Cleanroom, Complexity Analysis, Metrics, Capability Maturity, Six Sigma, Personal Software Process, Team Software Process (with this May 1999 edition, new courseware on systems engineering, life cycles, requirements engineering, configuration management, risk management, reviews, and several other topics)
- General-purpose tools (such as GRASP - Graphical Representation of Algorithms, Structures, and Processes - for Ada, C, C++, Java, and VHDL from Auburn University with funding from ARPA, NASA and NSF) - GRASP is updated with this May 1999 edition
- Quality freeware compilers for Ada, C, C++, Objective C, and FORTRAN 77 and interpreters for Perl and Tcl/Tk (Java expected in a future update)
- An introduction to Ada, a language specifically designed to support the engineering of large and small software systems, including safety-critical real-time software intensive systems

For the Practicing Ada Developer:

- The "Ada User's Bookshelf" - 100M+ bytes of hypertext documents, tutorials, and references on Ada, reuse, real-time software intensive systems and software engineering
- Index of useful web sites (with hyperlinks to them directly from the CDROM)
- Freeware Ada95 compilers and development environments for a variety of platforms, including Windows 95/98/NT and UNIX (such as GNAT Ada95 and C environment from Ada Core Technologies) - GNAT is updated with this May 1999 edition
- Freeware Software components and tools - RAPID, AdaGIDE, SCATC DSK, GWRL, and the Booch components are updated with this May 1999 edition
- Ada Semantic Interface Specification (ASIS)
- Support for Ada95 education, including tutorials and freeware tools (such as AdaGIDE from the United States Air Force Academy)
- Ada Advocacy material - why Ada is the preferred language for Software Engineering
- Ada background and historical information, user and developer notes, graphical icons, and other items of interest for the Ada enthusiast

For more information, visit the ASE Website at: <http://ase.isu.edu>

Richard Conn : <http://unicoi.kennesaw.edu/~rconn/ase>
<http://xenadu.home.mindspring.com>

The ASE website contains all the material on the ASE CDROM Set (over 2.1G bytes compressed on 4 CDROMs).

For ordering information, visit Walnut Creek CDROM Website <http://www.cdrom.com>

or send email to: <mailto:orders@cdrom.com> or call orders desk at: 800/786-9907 or 925/674-0783

Ada Basis WWW Server

Ada Basis WWW Server is a repository of about 560Mbyte of public domain source code and documents mainly taken from the Public Ada Library (see PAL below), although still expanding. The software has been classified and is presented in a hierarchical manner separated in different application domains, with a multi-faceted searching facility in some domains.

AdaBasis - an acronym for the German phrase "Bibliothek anwendungsbezogener Ada Software-Komponenten in Stuttgart" - is a repository of (mostly) free Ada Software, presented in a way that is (hopefully) easy to use and allows flexible access and effective searching.

mailto:adabasis@informatik.uni-stuttgart.de

Ada Basis: <http://www.informatik.uni-stuttgart.de/ifi/ps/ada-software/ada-software.html>

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## **The Ada-Belgium Archive**

One of the aims of the Ada-Belgium organization is to disseminate Ada-related information. So, in addition to the organization of seminars, workshops, etc., the management of two mailing lists and the publication of our newsletter, we also have set up an Ada archive for people and companies in Belgium. This enables everyone interested to consult and download all this software and documents using an ftp and e-mail server in Belgium, thus without the need to use (expensive) international connections. An enormous amount of Ada related information, compilers, tools, etc., is freely available on several archive sites abroad (mainly the U.S.A.) for electronic transfer.

Belgian Ada Software : Free Ada Software Provided by Belgian Ada

<http://www.cs.kuleuven.ac.be/~dirk/ada-belgium/archive.html>

<http://www.cs.kuleuven.ac.be/~dirk/ada-belgium/software>

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Ada Home: the Home of the Brave Ada Programmers (HBAP)

The mission of the Ada Home Web site is to support Ada programming by providing systematic help to

- * be productive with Ada (Resources),
- * learn and teach Ada (Discovery),
- * make and prove the case for Ada (Ammunition),
- * tap into the Internet (Network),

Magnus Kempe, Editor and Publisher

Ada Home: <http://www.adahome.com>

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## **Ada in Action**

Ada in Action (with Practical Programming Examples) by Do-While Jones is now on the Internet.

The first edition of Ada in Action was published by John Wiley & Sons, Inc. in 1989. Initial sales were not sufficient to retain John Wiley's interest in it, and it went out of print after only 1500 copies were sold. It then became a cult classic, with a very small :( but very loyal :-) following. There is said to be an unauthorized Chinese translation, and there have been reports that the asking price in Germany is double the cover price. If you have a copy of the first edition, take good care of it. The only new material in the second edition is contained in the dedication, copyright notice, the Epilog (Chapter 7). The new copyright notice is much less restrictive than the previous one. The Epilog contains reflections on the first edition.

Ada in Action demonstrates the skills and techniques that make programmers more productive, progressing from simple to more complex examples.

Ada in Action includes:

- Utilities that express floating-point values in fixed- or floating-point notation, and convert free-form character input to floating-point values.
- Three portable user interfaces that give the application program complete cursor control, permit line editing and default responses, and support "help" messages.
- Three file utility programs (MORE, WRITE, and LINE) that demonstrate file I/O and user interface techniques.

CONTACT: Do-While Jones [Mailto:do\\_while@ridgecrest.ca.us](mailto:do_while@ridgecrest.ca.us)  
<http://www.cs.kuleuven.ac.be/~dirk/ada-belgium/aia/contents.html>

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ASENTO

Ada Software Engineering Tools Project (ASENTO) consists of the tools, Ada Yacc (YACCA), which is an Ada version of the well-known Unix tool yacc, and Adaface, an interface generator for Ada programs and packages. Both programs are written in Ada 83 and produce Ada code. Programs are available on host ftp.cs.tut.fi (130.230.4.50) by anonymous ftp, directory pub/src/ASENTO. In case of problems, contact:

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 Tampere University of Technology
 P.O.Box 553
 33101 Tampere, Finland
 hmj@cs.tut.fi

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### Booch Components

The Ada 95 Booch Components began in late 1994 when David Weller began a port of Grady Booch's C++ components to Ada95. They have since been taken over by Simon Wright and, at this time, include implementations of:

- Bags : Unbounded, Bounded, Dynamic
  - Collections : Unbounded
  - (ordered) : Unbounded
- Graphs
  - Directed : Unbounded
  - Undir : Unbounded
- Lists
  - Single : Unbounded
  - Double : Unbounded
- Maps : Unbounded, Bounded, Dynamic
- Queues : Unbounded, Bounded, Dynamic
  - (ordered) : Unbounded
- Rings : Unbounded, Guarded, Synchronised
- Sets : Unbounded, Bounded, Dynamic
- Stacks : Unbounded, Bounded, Dynamic
- Trees
  - AVL : Unbounded; Binary : Unbounded; Multiway : Unbounded

Unbounded, Bounded and Dynamic refer to the storage allocation mechanism; Guarded and Synchronised to the way in which concurrency is handled.

There is one Component as yet unaddressed (the Deque); aside from that, the outstanding work is to fill in the unsupported Forms (Grady's word for the styles of implementation (Bounded, Dynamic etc)).

<http://www.pogner.demon.co.uk/components/bc>  
<http://www.adapower.com/booch>

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CARDS

CARDS (Comprehensive Approach to Reusable Defense Software) was a DoD program, sponsored by the U.S. Air Force (USAF) Electronic Systems Center (ESC), and dedicated to reducing the cost and time required to deliver high quality, software intensive systems, and to help maximize today's scarce resources by investigating, developing, and integrating systematic software reuse techniques and products.

As part of the Air Force's PRISM program, CARDS built an operational domain- specific, architecture-based reuse library from requirements, architecture, and component information defined in the PRISM Generic Command Center Architecture to maximize the reuse of existing COTS and GOTS components in command centers.

<http://nplace.wvhtf.org/nplacenev/ccplar/01ccplar.html>

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## DATA FUSION LABORATORY

The Data Fusion Laboratory at Drexel University has made a release of its Ada 95 Matrix Math package available to the Ada 95 community. This package targets vector and matrix math operations implemented natively in Ada 95. Many operations, such as determinants, subvectors/ matrices, singular value decompositions, inverses, eigenvalues/ eigenvectors are supported.

Data Fusions's web page: <http://dfwww.ece.drexel.edu>

The matrix package is entitled Ada Matrix Package: <http://dfwww.ece.drexel.edu/research/ada>

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ESTSC

The Energy Science and Technology Software Center (ESTSC) is the U.S. Department of Energy's (DOE) centralized software management facility. Operated by the DOE Office of Scientific and Technical Information (OSTI), the ESTSC licenses and distributes federally funded software developed by the national laboratories, other facilities and DOE contractors. This software represents the latest in Federal technology. In addition, the collection contains selected software from the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development (OECD).

Kinds of Software Available: The software packages in the collection can be used for many different applications. Software packages are designed to run on personal computers, workstations, mainframes, and supercomputers. In many cases, the packages are available in several environments to allow the software to be used on various computers and operating systems. Software is available on CD, diskette or via electronic transfer. All software includes supporting documentation.

Reviews Performed on Software Announced : Software packages available from the ESTSC are separated into categories on the basis of the level of review they have received-As is, Screened, and Tested.

As Is: The As Is software packages have been checked for completeness to ensure that all the necessary pieces of the package are included and that media are machine-readable. The data also have been examined for copyrighted or controlled information.

Screened: The Screened software packages have received all the reviews performed on As Is packages plus the software has been compiled and checked for unresolved external references.

Tested: The Tested software packages have received all the reviews performed on Screened packages plus the software has been run on the appropriate platform to ensure that it compiles and links without error. The Software has been tested using submitter-furnished inputs and associated outputs.

Software Prices: The prices for ESTSC software vary according to customer category, computer platform, and the level of review received. Platforms include personal computers (PC), workstations (WS), mainframes (MF), multi-platforms (MP), and supercomputers (S).

Subject Areas Include:

- Biology and medicine
- Chemistry
- Cross section and resonance integral calculation
- Data preparation and management

Deformation and stress distribution computations, structural analysis, and engineering design studies
Depletion, fuel management, cost analysis, and power plant economics
Electronics, engineering equipment, and energy systems studies
Environmental and earth sciences
Experimental data processing
Gamma heating and shield design
General mathematical and computing system routines
Heat transfer and fluid flow
Magnetic fusion research
Materials
Particle accelerators and high-voltage machines
Physics
Radiological safety, hazard and accident analysis
Reactor systems analysis
Space sciences
Space-independent kinetics
Space-time kinetics
Spectrum calculations, generation of group constants, lattice and cell problems
Static design studies
Subsidiary calculations

ESTSC

Mail: P.O. Box 1020

Oak Ridge, TN 37831-1020

Telephone: (423) 576-2606 Fax: (423) 576-6436

E-mail: estsc@adonis.osti.gov

<http://www.osti.gov/estsc/avail.htm>

<http://www.osti.gov/waisgate/estsc.html>

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## **EUROWARE & REBOOT**

The Software Engineering Department of Sema Group has been involved in different research and development projects related to reuse; some of them have evolved to final products.

One of the main activities of Sema Group is producing software; in fact, it is one of the largest software houses in Europe. At the end of 80s, knowing and suffering the famous "software crisis", Sema Group started a collaboration with other European companies to create a project whose aim was to study in depth the reuse approach, in order to have a good position in the next years.

REBOOT produced three different kinds of results:

- A complete methodology to introduce reuse, covering issues such as definition of a reusable component, classification of reusable components, metrics to evaluate the reusability, quality and reusability models built in top of those metrics, a reuse maturity model to asses the level of companies concerning reuse, etc. All these aspects are covered in Software Reuse: a holistic approach (E.A. Karlsson [editor], Wiley, 1994).
- A complete set of courses, covering from executive briefings to detailed sessions for technical people with explanation of development FOR reuse and development WITH reuse.
- A toolset, covering reengineering, metrication, qualification, classification, and evaluation features. Just to mention the integration of this toolset with Concerto, the technical CASE tool marketed by Sema Group, that is the development environment currently recommended by the European Space Agency.

REBOOT was only the first step. The next step was to focus the effort in a toolset able to help organization to set up reuse repositories. This effort was called EUROWARE.

<http://www.semagroup.com>

<http://www-cs.open.ac.uk/euoware/euoware.html>

## GNU

The Free Software Foundation is dedicated to eliminating restrictions on people's right to use, copy, modify, and redistribute computer programs. It promotes the development and use of free software in all areas using computers. Specifically, it is putting together a complete, integrated software system named "GNU" that will be upwardly compatible with Unix. ("GNU" is pronounced "guh-new" and stands for "GNU's Not Unix".) Most parts of this system are already used and distributed as working software, and are in use worldwide as vital components in Linux or "GNU/Linux" systems.

The word "free" in "Free Software Foundation" refers to freedom, not price. You may or may not pay money to get GNU software, but regardless you have two specific freedoms once you get it: first, the freedom to copy a program and give it away to your friends and co-workers; and second, the freedom to change a program as you wish, by having full access to source code. You can study the source and learn how such programs are written. You may then be able to port it, improve it, and share your changes with others. If you redistribute GNU software you may charge a distribution fee or give it away.

What is Copyleft? : The simplest way to make a program free is to put it in the public domain, uncopyrighted. But this permits proprietary modifications, denying others the freedom to use and freely redistribute improvements; it is contrary to the intent of increasing the total amount of free software. To prevent this, copyleft uses copyrights in a novel manner. Typically copyrights take away freedoms; copyleft preserves them. It is a legal instrument that requires those who pass on program to include the rights to use, modify, and redistribute the code; the code and rights become legally inseparable.

The copyleft used by the GNU Project is made from the combination of a regular copyright notice and the "GNU General Public License" (GPL). The GPL is a copying license which basically says that you have the aforementioned freedoms. An alternate form, the "GNU Library General Public License" (LGPL), applies to certain GNU libraries. This license permits linking the libraries into proprietary executables under certain conditions. The appropriate license is included in all GNU source code distributions and many manuals.

There are many GNU-associated free projects that could be mentioned. Here are a few:

- [www.gnome.org](http://www.gnome.org) - the Gnome desktop environment
  - [www.gnustep.org](http://www.gnustep.org) - GNUStep, the GNU version of the OpenStep/NextStep system
  - [www.gnupg.org](http://www.gnupg.org) - GNU Privacy Guard - free software encryption
  - [www.lesstif.org](http://www.lesstif.org) - GNU's version of Motif
- The GNU NYU Ada95 Translator (GNAT) Project can be obtained from:

GNAT compiler: <http://www.gnat.com>

PAL archive : <http://wuarchive.wustl.edu/languages/ada>

GNU site: <ftp://ftp.gnu.org/gnu/gcc>

Free Software Foundation, Inc. +1 617 542 5942  
59 Temple Place, Suite 330 +1 617 542 2652 (fax)  
Boston, MA 02111 USA <http://www.gnu.org>  
[gnu@gnu.org](mailto:gnu@gnu.org)

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NTIS

National Technical Information Service (NTIS), a self-supporting agency of the U.S. Department of Commerce, provides a free products and services catalog. In addition to its 2.5 million documents, NTIS markets thousands of mainframe and microcomputer programs (software, datafiles and models).

Go to the NITS web site to locate any publication issued since 1990, although abstracts are not provided for most of these. By January 2000, the site will be revised so that publications back to 1964 can be located. However, abstracts will only be available for publications announced in the past five years.

At this site, for \$15, a comprehensive search can be performed against the NTIS collection back to 1964. This is the best site to carry out full subject oriented searches. There is also a \$15 Day Pass service.

Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161

Sales (703) 605-6000 1-800-553-6847

NTIS: <http://www.NTIS.gov>

Computer Products: <http://www.ntis.gov/fpc>

PAL

The PAL is a library of Ada and VHDL software, information, and courseware that contains over 2.5 BILLION bytes of material (mainly in compressed form). All items in the PAL have been released to the public with unlimited distribution, and, in most cases (the exceptions are shareware), the items are freeware.

WUArchive is composed of two host computers:

wuarchive.wustl.edu, which contains the files of the PAL and supports anonymous FTP, Gopher, remote NFS mounts, and the World Wide Web, and

mail.wustl.edu, which handles several electronic mailing lists for the PAL

<http://wuarchive.wustl.edu/languages/ada>

<http://www.cdrom.com/pub/ada/pal.html>

PLIAT

The Product Line Issues Action Team, formerly RIAT, is an Action Oriented Group sponsored by the SIGAda Reuse Working Group of the Association for Computing Machinery. The RIAT supports and promotes the integration of software reuse into the software systems engineering processes for Government and industry. The RIAT concentrates on the management and business aspects of reuse.

<http://columbia.ivv.nasa.gov:6600.riat>

PragmAda Software Engineering

PragmAda Software Engineering offers the PragmAda Reusable Components, a library of over 35 of the world's finest quality components at the lowest prices. All components are fully guaranteed to behave as specified. No support charges; upgrades provided at cost (\$10.00 or less). 60-day unconditional money-back guarantee.

PragmAda Software Engineering

P. O. Box 641

Concho, AZ 85924-0641

(520) 587-0316

Jeffrey R. Carter (703) 904-9783

jrcarter@acm.org

SIGAda Education Site

Among other features, including references, this site contains lists of Ada tools and other repositories. Follow the links to Software Archives and then AdaBasis, a repository of mostly free Ada software, organized in a hierarchical manner into different application domains. Domains include:

Artificial Intelligence

Compilers

Database Management Documents

Text-Processing

Interfaces/Bindings

Mathematical Functions and Data Structures

Networking and Distributed Processing

Software Development Tools

SIGAda Education Site: <http://www.acm.org/sigada/education>

STARS

Software and Technology for Adaptable Reliable Systems (STARS) Program developed OS components, DBMS, user interface, network communications, text processing, graphics, stream data types, etc.

STARS: <http://source.asset.com/stars>

STARS REUSE FRAMEWORK : <http://www-ast.tds-gn.lmco.com/lm-tds/reuseworks/index.html>

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## Swiss Federal Institute of Technology

The Software Engineering Laboratory (LGL) at the Swiss Federal Institute of Technology at Lausanne (EPFL) maintains a list of Ada Resources.

These include:

- The Ada 95 Reference Manual
- The Ada 95 Rationale
- LGL Ada Component Library
- GLADE Filter Add-Ons
- Ada 95 Pretty Printer based on ASIS
- Mats Webers Ada Components
- GNAT User's Guide

Swiss Software Engineering Laboratory: <http://lglwww.epfl.ch/Ada>

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Source Translation & Optimization

"Is there reusable software for your project" and "Is there relevant prior art for your software patent", questions from two different worlds, both require the same solution - knowing where much of the software developed over the last twenty years around the country is located, and knowing how such software can be brought together in an obvious way to come close to your system/patent. Source Translation & Optimization maintains extensive databases of information on existing software resources to help companies cost effectively answer both questions.

SOFTWARE/HARDWARE Patent Analysis : STO maintains a large software/hardware prior art database and charges for searches. STO maintains information on over: 15,000 computer programs available in source code form, 50,000 software patents, and 800,000 abstracts of algorithms and software technology reports and articles. These software resources are the output of hundreds of government, academic and corporate facilities, not only in the United States, but also from foreign facilities. STO checks many sources, including government/university/corporate technical reports, journal articles, university theses, published books, commercial products (source code and object libraries), programs posted to/announced on the Internet, programs posted to standalone bulletin board systems, collections of software distributed as libraries on CDROMs, and existing software patents. Over 150 government/university/corporate facilities and over 240 journals are tracked.

In these sources, many forms of prior art/reusable software components are searched for: source code listings to a program, pointer to where source code can be obtained, a pointer to where object libraries are located, moderately decomposed structural configuration for a computer program, pseudo-code description of a computer algorithm, and the claims to a software patent. Less obvious forms of existing software searched for include: SPICE and VHDL input files, spreadsheet cell contents, tables of numerical data (since there are programs which convert these tables into computer programs), and financial management macro language source files.

Gregory Aharonian , Source Translation & Optimization
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srctran@world.std.com

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## ReNews

ReNews is an electronic software reuse and re-engineering newsletter, available on the world wide web, which includes lists of current and forthcoming reuse conferences and workshops, reuse references, reuse tools, reusable assets, and experiences and research. ReNews is affiliated with the IEEE Technical Council on Software Engineering, Committee on Software Reuse. ReNews contains links to back issues of the newsletter.

For other reuse information: <http://128.173.40.105/ase/Volume5.html>

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SPC

The Software Productivity Consortium (SPC) helps its 60+ member companies and government affiliates develop the processes, methods, tools, and services needed to significantly improve the design and implementation of high-quality, software-intensive systems.

The ability to reuse significant portions of existing software assets (requirements, designs, code, test cases, plans, etc.) in new systems offers significant potential for increasing engineering productivity and system quality--and decreasing the costs of building large, software-intensive systems. The Consortium approaches software reuse as a strategy for achieving business goals. Within the Consortium's Product Line Management & Engineering (PLME) product line, the Reuse Adoption Guidebook, the Domain Engineering Guidebook, and the Reuse-Driven Software Process guidebook address all aspects of institutionalizing effective reuse. The Reuse Adoption Guidebook guides Consortium customers in implementing a reuse program and increasing organizational reuse capabilities, in direct support of their organizational objectives. The Domain Engineering Guidebook helps organizations define a reuse-driven software process for its specific domain(s). The Consortium also helps its members assess their readiness to adopt reuse practices and estimate the costs of planned reuse programs.

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email: friedman@software.org

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## U.S. Army Electronic Commerce Center

If you search on software reuse, you will find several assets developed by previous DoD reuse efforts. In particular, <http://www.armyec.sra.com/knowbase/docs/doc108/usapoli.htm> contains (an expired) description of the army software reuse policy.

The Army was integrally involved in the development of the DoD software reuse program. For example, the army's reusable automated Ada products for information system development (RAPID) center library system configuration was adopted by the Dod for its Dod Software Repository System (DSRS).

For info on RAPID see Ada Letters (proceedings of SIGAda '99).  
Search for information on Rapid and DSRS: <http://www.armyec.sra.com>

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USAFA (US Air Force Academy)

USAFA software repository

While mostly the USAFA distributes Ada tools (such as AdaGIDE and RAPID), there are also Windows reusable components:

Parallel : A binding to use the parallel port under Windows 95/98.

Serial : A binding to use the serial port under Windows 95/98/NT.

Mcc-Sounds : A binding to play .WAV files under Windows 95/98/NT.

Additionally, they distribute an elementary graphical replacement for Ada.Text_IO.

The GUI libraries are an example of reusable code.

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USAFA software repository: http://www.usafa.af.mil/dfcs/bios/mcc_html/ada_stuff.html

Anonymous ftp site: <ftp://ftp.usafa.af.mil/pub/dfcs/carlisle/usafa/graph110/index.html>