REUSABLE SOFTWARE COMPONENTS

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This column consists of our January 2010 listing of sources for reusable software components. All information is obtained from web sites or directly from the parties involved. As always, no recommendation or guarantee by this column is implied.

We note that this issue marks twenty years of this column appearing in Ada Letters.

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Ada Basis WWW Server

Ada Basis WWW Server is an archive of about 560Mbyte of public domain source code and documents mainly obtained from the Public Ada Library (PAL). The software has been classified into different application domains and presented in a hierarchical manner.

AdaBasis is an acronym for the German phrase "Bibliothek anwendungsbezogener Ada Software-Komponenten in Stuttgart." It 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.

Application domains include:

- Artificial Intelligence
- Compilers
- Database Management
- Documents
- Text-Processing
- Interfaces/Bindings
- Mathematical Functions and Data Structures
- Networking and Distributed Processing
- Software Development Tools

The repository has not been updated in several years, but it is a good source to obtain a large volume of working Ada code for testing Ada-related tools.

CONTACT: adabasis@informatik.uni-stuttgart.de
http://www.informatik.uni-stuttgart.de/ifi/ps/ada-software/ada-software.html (site last updated 2010)

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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., and the management of two mailing lists, it also has set up an Ada archive which enables everyone interested to consult and download a large variety of Ada software and documents using a server in Belgium.

Key items include:

* A disk copy of the latest version of the Ada and Software Engineering Library (ASE2, a 2 disk CD-ROM set).
<ftp://ftp.cs.kuleuven.be/pub/Ada-Belgium/cdrom/index.html>

* A complete archive of the last public GNAT distribution that uses the GNAT Modified General Public License (3.15p).
<ftp://ftp.cs.kuleuven.be/pub/Ada-Belgium/mirrors/gnu-ada/>
* A directory with Free Ada Software provided by Belgian Ada users.
<http://www.cs.kuleuven.be/~dirk/ada-belgium/software/>

The Ada-Belgium archive is primarily intended for the Belgian Ada community, but anyone interested is welcome to use it.
<http://www.cs.kuleuven.be/~dirk/ada-belgium> (site last updated 6/11/2009)
<http://www.cs.kuleuven.be/~dirk/ada-belgium/archive.html>

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Ada Class Library

ACL is an object oriented library for Ada.Text search and replace. Scripting (small tool programs). CGI scripts. Execution of external programs (incl. I/O redirection). Garbage Collection. Extendended Booch Components. CD-Recorder

An AdaCL release for the Ada 2005 is included.

http://sourceforge.net/projects/adacl/ (site last updated July 2009)

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Ada Core

AdaCore is the development force behind the GNAT technology providing GNAT Pro for commercial software development and GNAT GPL for academic and Free Software developers. The GNAT technology is the first to support all three ISO standards of the Ada programming language - Ada 83, Ada 95, and Ada 2005. GNAT Pro also comes with product support (provided by the developers of the toolset) and expert Ada consulting.

The GNAT technology includes:

- GNAT Programming Studio IDE
- Full Ada Compiler (Ada 83/Ada 95/Ada 2005) Utilities for Analysis, Testing and Code Navigation Visual Debugger Libraries and Bindings Runtime Profiles GNAT Pro High-Integrity Family of products supporting safety and security standards such as DO-178B and MILS Support for over 70 native and cross platforms including Unix, Linux, Windows, .NET, the JVM, bare boards, VxWorks 5/6/653/MILS, LynxOS, and PikeOS

Add-on technologies:

- GNATbench - Plug-In for Eclipse (GNAT Pro) GNATstack - Stack Analysis Tool (GNAT Pro) Ada Web Services - Web-Based Technologies GtkAda - Intuitive GUI Builder and Extensive Widget Set XML/Ada - XML library GLADE Ada 95 Distributed Systems Annex Implementation PolyORB - Middleware ASIS-for-GNAT - Ada Semantic Analysis CodePeer - automatic code review and robustness validation SPARK Pro - code verification, based on information-flow analysis and theorem-proving.
- GNAT AJIS - allows Ada projects to integrate Java code and allows Ada projects to develop code for teams developing in Java C and C++ binding generators - generation of bindings for C and C++ headers GNATcheck - qualified coding standard checker

The GNAT Academic Program (GAP) was created to help bring Ada to the forefront of university study. It includes a comprehensive toolset and support package designed to give educators the tools they need to teach Ada. Free Software developers and students can download GNAT GPL from **libre.adacore.com.** For more information, please visit: http://www.adacore.com/home/academia (Site last updated 2010.) or contact: gap-contact@adacore.com.

Ada Home

The Home of the Brave Ada Programmers (HBAP) supplies information and links to Ada resources.

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)

SEE: **http://www.adahome.com/**
http://www.adahome.com/Resources/Tools/Non-Commercial.html

(last updated 1/2010 (some of the links need to be updated; most material is for Ada 95)

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Ada in Action

Ada in Action (with Practical Programming Examples) by Do-While Jones is now on the Internet. Thanks to the work of Chris Morgan, and the generosity of Dirk Craeynest and Ada-Belgium, Ada in Action is now on the web at

http://www.cs.kuleuven.ac.be/~dirk/ada-belgium/aia/contents.html

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 (1995) is contained in the dedication, copyright notice, and 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 do_while@ridgecrest.ca.us

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Ada IC

The Ada Information Clearinghouse has been providing free information about Ada and software engineering for over fifteen years. Sponsored by the Ada Resource Assoc. (http://www.adaresource.com) a consortium of Ada tool vendors and developers, the AdaIC maintains close contact with the Ada community in order to obtain the latest information on a variety of topics.

Visit their website, **http://www.adaic.org**, to see the latest in news, implementation guidelines, compilers and tools, reusable Ada code, education and training, Ada successes, and lessons learned by software developers. Site updated in 2010.

The Ada-wide search engine indexes all known Ada content (more than 58,000 pages at last count). General search engines, such as Google, have too many references to the term "Ada" to make them practical for the purposes of the Ada community.

Please send any news you have on Ada to the Editorial Webmaster <webmaster@adaic.org>. The Ada News of the AdaIC sometimes transmits press releases about the programming language to about 500 technical journalists and editors, as well as citing it on the AdaIC Website, as a free service to its users.

A comprehensive collection of Ada articles, reports, textbooks, videos, and CD-ROMS is available for browsing on-line through the AdaIC website. Users may access older components at the Virtual Library (**http://archive.adaic.com**).

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AJPO

The Ada Joint Project Office was closed on October 1998. For information on the AJPO see
http://sw-eng.falls-church.va.us/ajpofaq.html
http://sw-eng.falls-church.va.us/ajpo_databases/products_tools1.html

To obtain components previously available from PAL see
http://www.iste.uni-stuttgart.de/ps/AdaBasis/pal_1195/ada/ajpo/

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Adalog

Adalog offers Ada utilities, Ada components, and Adapplets. These can be freely used and modified for any purpose, under the GMGPL license. Functions include Protection, Debugging, and OS_Services, among others.

The site also contains Adasubst/Adadep programs which are useful utilities for rearranging Ada programs, and AdaControl, a powerful utility for checking and enforcing style and coding rules. AdaControl is a free (GMGPL) tool that detects the use of various kinds of constructs in Ada programs. Its first goal is to control proper usage of style or programming rules, but it can also be used as a powerful tool to search for use (or non-use) of various forms of programming styles or design patterns. Searched elements range from very simple, like the occurrence of certain entities, declarations, or statements, to very sophisticated, like verifying that certain programming patterns are being obeyed.
Since it is GMGPL, all of its parts can be reused for any purpose.

These programs are built on top of ASIS and include valuable packages providing higher level queries for ASIS (package Thick_Queries). For example, look for the function called "Full_Name_Image," which returns the unique name of any Identifier.

In addition, there is sc_timer, the Session Chair universal clock, which is very useful to those who have to chair a session, and a demo of GTK-Ada.

SEE: **http://www.adalog.fr**/ (site last updated Aug. 2009)
http://www.adalog.fr/adalog2.htm (English)

AdaPower

AdaPower.com is a repository of Ada information, links to resources, source code examples and packages for reuse. Ada Power's web site is being entirely revised with Ada, partially using a rapid agile web development framework called GRAW.

AdaPower.com can be divided into the following sections:

Articles and Links

Articles and Links to Ada Related Topics, Ada learning materials, and people in the Ada on-line community

The Ada Source Code Treasury

Source code examples of using Ada and Ada related bindings and tools for both beginner and advanced students of Ada

Packages for Reuse

An extensive repository of categorically arranged packages for download and links to packages available for reuse on the internet

see:

http://www.adapower.com/ site last updated 2010

http://www.adapower.com/index.php?Command=Class&ClassID=AdaLibs&Title=Ada+Libraries

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Ada Structured Library

Ada structured Library is a set of general containers and utilities. The library is licensed under the same license as GNAT (see GNU, below), which is GPL but is modified to allow inclusion into a program without bringing the whole program under the GPL.

The utilities include some things lacking in Ada95, including:

* Abstract I/O - allows the I/O user and the I/O to be decoupled, so you can do file I/O, socket I/O, serial I/O telnet, etc. by changing the I/O object the user references. Includes many functions of Ada.Text_IO.
* Calendar - Full-featured time and calendar manipulation.
* Telnet - A general telnet library implemented over sockets.
* Command processor - Does string tokenizing and command processing over Abstract I/O.
* A set of general-purpose containers, including Lists, Vectors, Trees, Graphs, and a Btreee, with lots of options.

The library is stored at sourceforce.com, which hosts other open source components listed on these pages.

See: http://adasl.sourceforge.net/ (last updated November 2001)

http://sourceforge.net/projects/adasl

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Ada World

Ada World was developed to promote the Ada programming language and Ada related projects. Features include:

Ada Advocacy

What makes Ada so good? What features of Ada are only available in Ada and make it the Top Dog of programming languages? You can find out here. You can find language comparisons, Ada specific list of features, and documents that talk about these features, explain them clearly so you not only know what features there are, but how to use them to your advantage in your Ada development projects.

Ada Learning Center

This section is filled with Ada tutorials, Online books that you can download and/or view online. Whether you just want to get an idea of how Ada works, or if you want to learn most advanced topics in Ada, there's something here for you.

Ada Projects

Essentially projects are broken down into Applications, Bindings, Libraries and tools categories. Although the site was last updated in 2006, it contains a number of free Ada software packages.

See: http://www.adaworld.com/

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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:

For Definite Types:			For Indefinite Types	
Bags		: UBDN	Bags	
Collections		: UBDN	Collections	: UBDN
	(ordered)	: UBDN		
Dequeues		: UBDN	Dequeues	
Graphs	Directed	: U	Graphs Directed	
	Undirected	: U	Undirected	
Lists	Single	: U	Lists Single	
	Double	: U	Double	
Maps		: UBDN	Maps	: UBDN
Queues		: UBDN	Queues	: UBDN
	(ordered)	: UBDN	(ordered)	
Rings		: UBDN	Rings	
Sets		: UBDN	Sets	
Stacks		: UBDN	Stacks	
Trees	AVL	: U	Trees AVL	
	Binary	: U	Binary	
	Multiway	: U	Multiway	

U=Unbounded, B=Bounded, D=Dynamic, and N= Unmanaged refer to the storage allocation mechanisms available for the component. U and D use user-supplied storage pools, B doesn't use dynamic allocation at all, and N uses the default pool. Filtering and sorting operations are supported.

The Containers are compatible with both Ada 95 and Ada 2005. Backward compatibility with Ada 95 will be retained.

At least one release is planned for 2010, to extend the range of indefinite containers and to fix a problem with 64-bit compilers.

See: **http://booch95.sourceforge.net/** (late updated 8/09)
http://sourceforge.net/projects/booch95/
http://booch95.sourceforge.net/documentation.html#the-containers

CONTACT: Simon Wright (simon@pushface.org) or Martin Krischik martin@krischik.com

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Charles

Charles is a container and algorithms library for Ada, modeled on the C++ STL. Sequence containers (vectors, deques, and lists) store unordered elements, inserted at specified positions. Associative containers (sets, maps, multisets, and multimaps) order elements according to a key associated with each element; both sorted (tree-based) and hashed containers are provided. A separate iterator type associated with each container is used to visit container items and to effect direct modification of elements. Charles is flexible and efficient, and its design has been guided by the philosophy that a library should stay out of the programmer's way. The Ada 2005 AI-302 reference implementation is located in the ai302 subdirectory: http://charles.tigris.org/source/browse/charles/src/ai302/
See: **http://charles.tigris.org** Site last updated May 2009.
Contact: matthewjheaney@tigris.org

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COSMIC

Open Channel Software has entered into an agreement with the National Technology Transfer Center (NTTC) to publish the COSMIC software collection. This collection represents software created by NASA in a wide range of disciplines including engineering, chemistry, aerodynamics, and other areas. In previous years, this column featured COSMIC software when it was supported by the University of Georgia Research Foundation. Many COSMIC programs are available for "adoption." When you adopt an orphaned application at Open Channel, you agree to moderate user contributions to the application. You also take over the maintenance of the site for the application through a Content Management system.

CLIPS/Ada provides most of the capabilities of CLIPS v5.0, but uses Ada as the source language for the CLIPS executable. The main difference between CLIPS 5.0 and CLIPS/Ada 4.4 is the absence of the CLIPS ObjectOriented Language (COOL).

http://www.openchannelfoundation.org/cosmic/
http://www.openchannelfoundation.org/projects/CLIPS-ADA site last updated 2009.
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DMOZ

DMOZ is a free, open directory project, with Ada components submitted and maintained by volunteers. Several of the items that are listed elsewhere in this column are included at this site, as well as many more. In particular, check the link to:
Arx - A full, stand-alone RTOS: fully preemptive realtime kernel, POSIX thread library, multithread-safe standard I/O libraries, TCP/IP suite, VFAT file system, X11 R6 window system, user-level IO, mainly written in Ada.
http://www.dmoz.org/Computers/Software/Operating_Systems/Realtime/Research/.
http://dmoz.org/Computers/Programming/Languages/Ada/Bindings_and_Libraries/ (last update 2009
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FREE SOFTWARE FOUNDATION

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 and its documentation in all areas using computers. Specifically, it is maintaining a complete, integrated software system named "GNU". ("GNU" is pronounced "guh-new" and stands for "GNU's Not Unix".)

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 specific freedoms once you get it: the freedom to copy a program and give it away to your friends and co-workers; and 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
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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.
For the Free Software Definition, see: http://www.gnu.org/philosophy/free-sw.html

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 programs 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." (http://www.gnu.org/copyleft/gpl.html) GPL is a copying license which basically says that you have the aforementioned freedoms. An alternate form, the "GNU Lesser General Public License" applies particularly to certain GNU libraries. This license permits linking the libraries into proprietary executables under certain conditions.

See http://www.gnu.org/copyleft/copyleft.html
http://www.gnu.org/licenses/licenses.html

GNU-associated Ada projects located at https://libre2.adacore.com/libre, include

- The Ada for GNU/Linux Team (ALT)
- The Ada for SCO page.
- The Ada for NetBSDpage.

The GNAT Technology includes the implementation of the ASIS standard (Ada Semantic Interface Specification), GtkAda to build portable and efficient GUIs in Ada, AWS (Ada Web Server) the framework to develop Web-based applications in Ada, the XML/Ada library to process XML streams in Ada, GLADE to develop distributed applications following the Ada Distributed Systems Annex standards, and PolyORB to develop distributed applications following the CORBA standard.

The GNAT GPL 2005 Edition, which is available free of charge from http://libre.adacore.com/libre, is licensed for Free Software development under the terms and conditions of the GNU General Public License (GPL). Implementation of the new Ada 2005 features is also available in GNAT Pro, which is licensed for all types of software development.
For more information visit the following links:

GNAT GPL 2005 Edition: http://libre.adacore.com/libre
GNAT Pro: http://www.adacore.com/home/products/gnatpro/
Ada components: http://directory.fsf.org/project/adacom/

GNAT is listed in the Free Software Directory, which catalogs useful free software that runs under free operating systems, particularly the GNU operating system and its GNU/Linux variants.
Please see http://directory.fsf.org/gnat.html .

Free Software Foundation, Inc. +1 617 542 5942 x 23
51 Franklin Street, Fifth Floor +1 617 542 2652 (fax)
Boston, MA 02110-1301 email: info@fsf.org
See: http://www.fsf.org http://www.gnu.org

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GNADE

The Gnat Ada Database Environment (GNADE) open source project contains tools and packages for an Ada95 development environment integrating with relational databases and Ada95 database products.

GNADE contains packages for

Thin bindings to different RDBMS products like Oracle, PostgreSQL, MySQL using ODBC.
Embedded SQL
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Native bindings to other RDBMS approaches such as sqlite
Object persistency

GNADE 1.6.0 contains a Common Build for Windows & Linux and other Platforms and is Ada 2005 compatible.
See: http://gnade.sourceforge.net/#objective
http://gnade.sourceforge.net (site last updated 2008)
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GNAVI

GNAVI: The GNU Ada Visual Interface - The Open Source answer to Delphi and Visual Basic
GNAVI is a project to construct an Open Source Rapid Application Development Environment similar to Delphi using Ada. Currently the following are available:

- GNATCOM - Ada bindings to COM/DCOM/ActiveX for Win32 (stable) GWindows Win32 - Windows binding and framework (stable) GWindows OSX - in early Alpha, OS X binding and framework (pre-alpha)
- GWindows GTK for Unix and Linux and GNAVI IDE - the GUI Application builder and RAD Environment are being developed.

For more information see **http://www.gnavi.org** (site last updated 2009)
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Leake Components

Stephen Leake maintains the following Ada components:
com ports: An Ada binding, based on Win32Ada, to the Win32 com port facilities.
Auto_Text_IO: automatically generates Text_IO packages for Ada packages
Stephe's Ada Library: another entry in the Standard Ada Library sweepstakes

A large part of SAL provides math operations for kinematics and dynamics of masses in 3 dimensional space. Cartesian vectors, quaternions, orthonormal rotation matrices, moments of inertia, forces, acceleration, velocity are supported, in 3 and 6 degrees of freedom (translation and rotation). I've used this library for both robotics and satelite simulation.

http://stephe-leake.org/ site last updated Dec. 26, 2009
http://stephe-leake.org/emacs/ada-mode/emacs-ada-mode.html
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Kazakov Objects

Dmitry Kazakov maintains a web site of free Ada components. The library conforms to both Ada 95 and Ada 2005 language standards

1. Objects and handles (smart pointers)
    1.1. Objects
    1.2. Handles to objects
    1.3. An example of use
    1.4. Bounded arrays of objects
    1.5. Unbounded arrays of objects
    1.6. Sets of objects
    1.7. Universal sets of objects
2. Persistency
    2.1. Persistent objects
    2.2. Handles to persistent objects
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2.3. Persistent directories
2.4. Persistent storage implementation example
2.5. Abstract persistent storage
2.6. Handles to persistent storage
2.7. Persistent storage factory
2.8. Persistent storage implementations
2.9. Implementation of a new persistent storage
2.10. Visual browsing of a persistent storage 3. Sets and maps
3.1. Sets
3.2. Maps
4. Unbounded arrays
5. Unbounded arrays of pointers
6. Stacks
6.1. Stacks based on abstract arrays
6.2. Segmented stacks
7. Pools
7.1. Stack pool
7.2. Mark and release pool for controlled objects 8. Doubly-linked networks
8.1. Doubly-linked lists of networks (specialization)
8.2. Doubly-linked lists
9. Graphs
9.1. Directed graphs
9.2. Directed weighted graphs
10. Lock-free structures
10.1. FIFO
10.2. Blackboard
11. Locking synchronization primitives
11.1. Notes on programming with protected objects
11.2. Events
11.3. Mutexes
12. Parsers
12.1. Example first, a small calculator
12.2. Basic considerations
12.3. The base package
12.4. Sources
12.5. Tokens
12.6. Lexers
12.7. Operations
12.8. Arguments
12.9. Parsing tree example. Ada 95 expression parser 13. Cryptography
13.1. Sequences of non-repeating pseudo random numbers
13.2. Symmetric serialization
14. Numerics
14.1. IEEE 754 representations
14.2. Chebyshev series
14.3. Gamma function
15. Miscellany
15.1. Address order
16. Packages
16.1. Source packages
16.2. Tests and examples
Tables (a separate document)

Strings edit (a separate document)
17. Installation
18. Changes log

The license is GM GPL, where appropriate.
See: **http://www.dmitry-kazakov.de/ada/components.htm (**last updated 2010)
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PragmAda Reusable Components

PragmAda Software Engineering provides the PragmAda Reusable Components, a library of over 60 of the world's finest quality components as free, open-source software available under the GNAT-modified GPL. The PragmARCs are Ada 95; some of the components will not compile with an Ada-07 compiler. The components are available at

http://pragmada.home.mchsi.com/pragmarc.htm

PragmAda Software Engineering will provide support for the library at very low prices.

CONTACT: 911 South Cedar Drive
Apache Junction, AZ 85220-8440
(480) 983-5634

The PragmAda home page is at
http://pragmada.home.mchsi.com with links to both the PragmARCs and the Mine Detector game.
The e-mail address is pragmada@mchsi.com
Last update 2006
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QtAda

QtAda is an Ada2005 language binding to the Qt libraries and a set of useful tools. Qt is a cross-platform C++ development framework developed and supported by Qt Software. QtAda supports Qt version 4.4 and later. QtAda supports the development of a cross-platform powerful graphical user interface completely in Ada 2005. QtAda applications will work on most popular platforms — Microsoft Windows, Mac OS X, Linux/Unix — without any changes and platform specific code. QtAda applications use native look and feel (and even utilize user Control Panel settings) on every supported platform.

QtAda is not just a binding to the existent Qt widgets. It also allows the development of your own widgets and integrates them into the Qt Designer for high speed visual GUI development. QtAda uses native thread safe signal/slot mechanism and provides full transparent integration with Ada tasks. QtAda provides support for application localization/internationalization, including message translations, local specific character and string processing, date/time and numeric formatting.

See**: http://www.qtada.com/en/index.html** (site under construction)
Email: sales@qtada.com
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SIGAda

Be sure to check the web pages of SIGAda at

http://www.sigada.org

In particular, see SIGAda's many links to software repositories and resources.

http://www.sigada.org/resources/links.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 pointers to Ada Resources: These include:

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

Although the LGL closed on September 2007. Ada resources are available for download at

http://lgl.epfl.ch/ada/index.html
http://lgl.epfl.ch/ada/components/index.html

Also see information on Ada In Switzerland, an organization that promotes the use of the Ada language.

http://www.ada-switzerland.ch/

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USAFA

The US Air Force Academy maintains an Ada software repository. USAFA mostly distributes Ada tools (such as A#, AdaGIDE and RAPID). More information on RAPID is in Ada Letters (proceedings of SIGAda '99). The GUI libraries are an example of reusable code. In addition, the USAFA repository includes the following software:

- 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.
- An elementary graphical replacement for Ada.Text_IO.
- AdaGOOP: An automatic object-oriented parser generator
- Adagraph : a modified version of Jerry van Dijk's Adagraph
- Fortran to Ada Translator donated by Oliver Kellogg (DaimlerChrysler Aerospace, Ulm Germany), implemented as a perl script

AdaGide, a leading open-source IDE for Ada under Windows, now includes A#, an Ada compiler for the Microsoft .NET platform. A# also has been integrated into Visual Studio 2005.

See: **http://www.martincarlisle.com/ada_stuff.html** (last update 2010)
http://adagide.martincarlisle.com
http://asharp.martincarlisle.com
http://rapid.martincarlisle.com

CONTACT: Martin C. Carlisle, Professor of Computer Science
US Air Force Academy carlislem@acm.org

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Mats Weber's Component Library

The components in this library fall into four main categories. The most useful may be the data structures, which were written to be as versatile as possible.

- Data Structures (Bags, Tables, Queues, Stacks, Lists, etc.)
- Math (ZpZ_Field, Polynomials, Permutations, Linear_Programming, etc.)
- Ada Programming Tools (Makeup_Ada_File, Ada_Lexical_Analyzer, etc.)
- OS Interface (CPU, VMS_File_Names, etc.)

These components are for Ada 95 and generally will not compile with Ada 83, but almost all you will have to do is remove the (<>) in generic formal types where appropriate.

http://mats.weber.org/ada/mw_components.html mats@weber.org