

## REUSABLE SOFTWARE COMPONENTS

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[http://alpha.fdu.edu/~levine/reuse\\_course/columns](http://alpha.fdu.edu/~levine/reuse_course/columns)

This column consists of our January 2009 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.

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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. 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" and 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.

The 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

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

CONTACT: [adabasis@informatik.uni-stuttgart.de](mailto:adabasis@informatik.uni-stuttgart.de)  
<http://www.informatik.uni-stuttgart.de/ifi/ps/ada-software/ada-software.html> (last updated 2009)

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### 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/> last updated 1/09 but some of the information is outdated  
<http://www.adahome.com/Resources/Tools/Non-Commercial.html>

## 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:

- \* 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 (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>> last updated 2009  
<<http://www.cs.kuleuven.be/~dirk/ada-belgium/archive.html>>  
<<ftp://ftp.cs.kuleuven.be/pub/Ada-Belgium>>

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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. Extended Booch Components. CD-Recorder

An AdaCL release for the Ada 2005 is included.

[http://sourceforge.net/projects/adacl/branches/Ada\\_2005/](http://sourceforge.net/projects/adacl/branches/Ada_2005/)  
**<http://sourceforge.net/projects/adacl/>** site last updated December 2007

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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](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/](http://www.iste.uni-stuttgart.de/ps/AdaBasis/pal_1195/ada/ajpo/)**

## 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

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. For more information, please visit <http://www.adacore.com/home/academia> or contact [gap-contact@adacore.com](mailto:gap-contact@adacore.com).

For more information on GNAT Pro please visit <a href="http://www.adacore.com/home/gnatpro">http://www.adacore.com/home/gnatpro</a> or contact <a href="mailto:sales@adacore.com">sales@adacore.com</a> .
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Free Software developers and students can download GNAT GPL from **[libre.adacore.com](http://libre.adacore.com)**.

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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 2008.

The Ada-wide search engine indexes all known Ada content (more than 48,000 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](mailto: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>).

## 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/> last update 2009  
<http://www.adalog.fr/adalog2.htm> (English)

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## AdaPower

AdaPower.com is a repository of information, links to resources, source code examples and packages for reuse. 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

### Ada Projects and AdaPower.net

Listings and hosting for Active Ada projects on the net

Please contact Ada Power with articles, links or package submissions, or for information on hosting your project on AdaPower.net see:

<http://www.adapower.com/> site last updated 2009  
<http://www.adapower.com/index.php?Command=Class&ClassID=AdaLibs&Title=Ada+Libraries>

## 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 Btree, 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/>**

<http://sourceforce.net/projects/adasl> updated 2009

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## Ada World

Ada World was developed to promote the Ada programming language and any Ada related projects.

Features include:

### Ada Advocacy

Ever wondered what's so good about Ada? Don't know why Ada programmers don't want to switch to anything else? What makes Ada as good as we say it is? 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

If you want to learn how to program in Ada. The Ada Learning Center is where you'll want to go. This section is filled with Ada tutorials, Online books you can download and/or view online. Covering every aspects of learning Ada and beyond. Whether you just want to get an idea of how Ada works, or if you want to learn Ada most advanced topics, there's something here for you.

### Ada Projects

This is where you can read about and get a hold of what's currently being developed in the Ada Language. So if you're curious about what's going on in the world of Ada, this is where you'll want to go. Essentially projects are broken down into Applications, Bindings, Libraries and tools categories. Depending on what you want to see, you'll be able to find them in one of those categories.

**See: <http://www.adaworld.com/>**

site last updated 2006

## 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	:	UBDN
Collections	:	UBDN
(ordered)	:	UBDN
Dequeues	:	UBDN
Graphs Directed	:	U
Undirected	:	U
Lists Single	:	U
Double	:	U
Maps	:	UBDN
Queues	:	UBDN
(ordered)	:	UBDN
Rings	:	UBDN
Sets	:	UBDN
Stacks	:	UBDN
Trees AVL	:	U
Binary	:	U
Multiway	:	U

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.

New to the collection are indefinite collections (for storing indefinite types):

```
bc-indefinite_containers-collections-bounded.ads
bc-indefinite_containers-collections-dynamic.ads
bc-indefinite_containers-collections-ordered.ads
bc-indefinite_containers-collections-ordered-bounded.ads
bc-indefinite_containers-collections-ordered-dynamic.ads
bc-indefinite_containers-collections-ordered-unbounded.ads
bc-indefinite_containers-collections-ordered-unmanaged.ads
bc-indefinite_containers-collections-unbounded.ads
bc-indefinite_containers-collections-unmanaged.ads
bc-indefinite_containers-queues-bounded.ads
bc-indefinite_containers-queues-dynamic.ads
bc-indefinite_containers-queues-ordered.ads
bc-indefinite_containers-queues-ordered-bounded.ads
bc-indefinite_containers-queues-ordered-dynamic.ads
bc-indefinite_containers-queues-ordered-unbounded.ads
bc-indefinite_containers-queues-ordered-unmanaged.ads
bc-indefinite_containers-queues-unbounded.ads
bc-indefinite_conta
```

See: <http://booch95.wiki.sourceforge.net/> last updated 2009  
<http://booch95.wiki.sourceforge.net/ComponentDocumentation#tocComponentDocumentation13>

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

### Charles

Charles is a container library for Ada95, modeled closely on the C++ STL. Sequence containers (vectors, deques, and lists) store unordered elements, inserted at specified positions. Associative containers (sets and maps) 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.

See: <http://charles.tigris.org> Site last updated 2008.

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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, we featured COSMIC software when it was supported by the University of Georgia Research Foundation. Many of the 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 2008.

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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. Not all of the links are current. Site last updated 2008.

[http://dmoz.org/Computers/Programming/Languages/Ada/Bindings\\_and\\_Libraries/](http://dmoz.org/Computers/Programming/Languages/Ada/Bindings_and_Libraries/)

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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 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. The appropriate license is included in all GNU source code distributions and many manuals.

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/>, 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/>, 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:

- Ada 2005: [http://www.adacore.com/home/ada\\_answers/ada\\_2005/](http://www.adacore.com/home/ada_answers/ada_2005/)
- GNAT GPL 2005 Edition: <http://libre.adacore.com/>
- GNAT Pro: <http://www.adacore.com/home/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: <a href="mailto:info@fsf.org">info@fsf.org</a>
See: <a href="http://member.fsf.org">http://member.fsf.org</a>	<a href="http://www.gnu.org">http://www.gnu.org</a>
<a href="http://www.fsf.org/about/contact.html">http://www.fsf.org/about/contact.html</a>	

## 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
- 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 2004)

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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.  
Stephe's Ada Library: another entry in the Standard Ada Library sweepstakes  
Auto\_Text\_IO: automatically generates Text\_IO packages for Ada packages

<http://stephe-leake.org/> site last updated 2006

<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:

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
  - 1.8. Persistent objects
  - 1.9. Handles to persistent objects
  - 1.10. Persistent storage implementation example
  - 1.11. Abstract persistent storage
  - 1.12. Handles to persistent storage
  - 1.13. Persistent storage factory
  - 1.14. Persistent storage implementations
  - 1.15. Implementation of a new persistent storage
2. Sets and maps
  - 2.1. Sets
  - 2.2. Maps
3. Unbounded arrays
4. Unbounded arrays of pointers
5. Stacks
  - 5.1. Stacks based on abstract arrays
  - 5.2. Segmented stacks
6. Pools
  - 6.1. Stack pool
  - 6.2. Mark and release pool for controlled objects
7. Doubly-linked networks
  - 7.1. Doubly-linked lists of networks (specialization)
  - 7.2. Doubly-linked lists
8. Parsers
  - 8.1. Example first, a small calculator
  - 8.2. Basic considerations
  - 8.3. The base package
  - 8.4. Sources
  - 8.5. Tokens
  - 8.6. Lexers
  - 8.7. Operations
  - 8.8. Arguments
  - 8.9. Parsing tree example. Ada 95 expression parser
9. Packages
  - 9.1. Source packages
  - 9.2. Tests and examplesTables (a separate document)  
Strings edit (a separate document)
10. Changes log

The license is GM GPL, where appropriate.

See: <http://www.dmitry-kazakov.de/ada/components.htm>

mailbox@dmitry-kazakov.de last updated 2009

## **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  
                  <http://pragmada.home.mchsi.com/pragmarc.htm>

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](mailto:pragmada@mchsi.com)

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## **QtAda**

QtAda is an Ada2005 language bindings 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 to develop your own widgets and integrates it 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 excellent support for application localization/internationalization, including message translations, locale specific character and string processing, date/time and numeric formatting.

See: <http://www.qtada.com/en/index.html>

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## **SIGAda**

Be sure to check the web pages of SIGAda at

**<http://www.sigada.org>**

In particular, see SIGAda's 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, resources for download are available at

**<http://lgl.epfl.ch/ada/index.html>**

Also see information on Ada In Switzerland

<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](http://www.martincarlisle.com/ada_stuff.html)**

<http://adagide.martincarlisle.com>

<http://asharp.martincarlisle.com>

<http://rapid.martincarlisle.com>

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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 if you need to use them in an Ada 83 environment, almost all you will have to do is remove the (<>) in generic formal types where appropriate.

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**[http://mats.weber.org/ada/mw\\_components.html](http://mats.weber.org/ada/mw_components.html)**

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