ALS Prolog

Manuals

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Introduction and Contents

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    6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

  You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

    a) Accompany the work with the complete corresponding   machine-readable source code for the Library including whatever   changes were used in the work (which must be distributed under   Sections 1 and 2 above); and, if the work is an executable

linked   with the Library, with the complete machine-readable "work that   uses the Library", as object code and/or source code, so that the   user can modify the Library and then relink to produce a modified   executable containing the modified Library. (It is understood   that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application   to use the modified definitions.)

    b) Accompany the work with a written offer, valid for at   least three years, to give the same user the materials   specified in Subsection 6a, above, for a charge no more   than the cost of performing this distribution.

    c) If distribution of the work is made by offering access to copy   from a designated place, offer equivalent access to copy the above   specified materials from the same place.

    d) Verify that the user has already received a copy of these   materials or that you have already sent this user a copy.

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  It may happen that this requirement contradicts the license restrictions of other proprietary libraries

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a) Accompany the combined library with a copy of the same work   based on the Library, uncombined with any other library   facilities. This must be distributed under the terms of the   Sections above.

b) Give prominent notice with the combined library of the fact   that part of it is a work based on the Library, and explaining   where to find the accompanying uncombined form of the same work.

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Appendix: How to Apply These Terms to Your New
Libraries

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of the greatest possible use to the public, we
recommend making it free software that everyone can
redistribute and change. You can do so by permitting
redistribution under these terms (or, alternatively,
under the terms of the ordinary General Public
License).

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to the library. It is safest to attach them to the
start of each source file to most effectively convey
the exclusion of warranty; and each file should have
at least the "copyright" line and a pointer to where
the full notice is found.

    <one line to give the library's name and a brief
idea of what it does.>   Copyright (C) <year> <name
of author>

    This library is free software; you can
redistribute it and/or   modify it under the terms
of the GNU Library General Public   License as
published by the Free Software Foundation; either
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later version.

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You should have received a copy of the GNU Library General Public   License along with this library; if not, write to the Free   Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

  Yoyodyne, Inc., hereby disclaims all copyright interest in the   library `Frob' (a library for tweaking knobs) written by James Random Hacker.

  <signature of Ty Coon>, 1 April 1990   Ty Coon, President of Vice

That's all there is to it!

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2 Navigation and Manual Organization

The most important first step, of course, is to thoroughly read and absorb the Adobe Reader Help. It is worth noting the the Adobe Reader normal mouse cursor in both the 1.x and 2.x is the grasping hand. When the cursor passes over an active hyperlink (graphic or text), it changes shape: to an 'active' cursor. Clicking the left

Version 1.x:

Version 2.x:

mouse button when the cursor is 'active' causes Acrobat to follow the hyperlink.

Ordinary hyperlinks (no presumption about the target) are indicated by blue underlined text. Reference hyperlinks (links into the Reference Manual) are indicated by magenta underlined text. All cross-references (e.g., 'See ...') are active hyperlinks, even when they appear in ordinary black text.

Note that cross-references in the text (e.g., 'See Chapter 11 (**Prolog Builtins: Not-I/O**) are also hyperlinks, even thought they are not colored. Clicking on any part from the initial 'Chapter' through the closing right parenthesis ')' activates such a link.

The overall conceptual organization of the manual set is suggested in the following diagram, with blue indicating hyperlinks:

ALS Begin Home (this document)

User's Guide TOC   Reference Manual TOC   Development Tools TOC
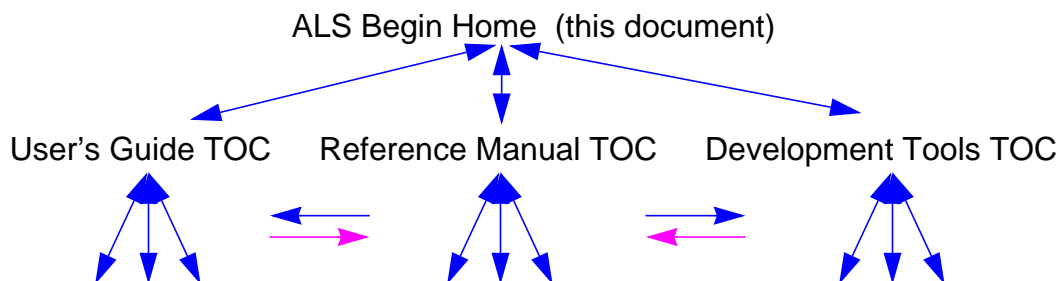
The lines of each table of contents are hyperlinks, even when they are not colored or underlined. Note that the cursor becomes 'active' when it is over any contents line. Clicking on a contents line takes you to the beginning of the indicated section of the target document.

Note also that the pagination reflects the broad division into volumes:

      ALS-#   (this) ALS Begin volume;
      UG-#   the User's Guide
      RF-#   Reference Manual
      DT-#   the Development Tools

Special notes concerning various systems are indicated by the following icons:

Several icons are used for marginal notations:

Indicates ALS Prolog language facilities which are exten-
sions of the ISO Standard. That is, the marked feature or
predicate is not described in or required by the ISO Standard.

Indicates discussions which
may be difficult or confusing.

Proceed with caution -- the indicated feature
may be subject to change because of develop-
ments in the ISO Standard, or because it is a
new and relatively experimental feature.

3 Finishing the Installation

Depending on your computer configuration, your operating system, and your own needs, you may want to make various changes to the basic installation of ALS Prolog.   In particular, you may wish to simply leave the directory structure more or less as created during the basic installation, and simply set some of your search paths to include some of the directories inside the basic installation. On the other hand, you may choose to move various components of the ALS Prolog system to reside in public directories such as */usr/bin* or */usr/local/bin* on Unix systems or *\bin* (if there is such a public directory) on a DOS or Windows system. The primary items you may be concerned with are:

- the Adobe Acrobat Reader

- the ALS Prolog manuals

- the ALS Prolog executable(s), linkables, and tools

3.1 Adobe Acrobat Reader

Depending on the steps you took during the basic installation, you may want to add the directory where the reader executable resides to your personal search path.

On some systems, you may want to adjust the color presentation (your desktop, etc.), since in some cases, the viewing of the manual has been affected by the color environment. If you choose the **Navigation and Manual Organization** link from the home page (page 2) of this document (click the 'home' icon below to get there), you will be presented with a good test page for the color rendering. In particular, you need to be able to clear see the blue underline text and the red/magenta underline text.

On Unix, one starts the reader with a command:

```
acroread.
```

You can add a command line argument to this, for example

```
acroread myfile.pdf
```

and the reader will automatically open that file. You can create some shell com-

mands making it easier to start up the manual. In the top level of the manual sub-directory, you will find a shell file *alsman* (*alsman.bat* on DOS).

Here is *alsman* (on Unix):

```
#!/bin/sh
#
acro=acroread
mandir=/usr/local/manual.pdf
mans=$mandir/alsbegin.pdf

$acro $mans
```

Simply change the values for `acro`, `mandir`, and `mans` as appropriate for your installation.

3.2   ALS Prolog manuals

The manuals reside in the *manual* subdirectory of *alspro*. You may choose to keep this directory here, or you can move the directory in its entirety to another location. and you can change the top-level name '*manual*'.   However, keep all of the manual files together in the same directory, since the on-line *.pdf documents depend on this particular organization.

3.3   ALS Prolog executables and relatives

Apart from the *manual* subdirectory, the directory structure of the rest of the *alspro* distribution is shown in the diagram below:: There may or may not be a 'na-

```
alsdir              examples        threaded        native
  builtins            als             alspro.a        alspro.a
                                      alspro_b        alspro_b
  library             pxs             alspro          alspro
  tools
  als-mics
```
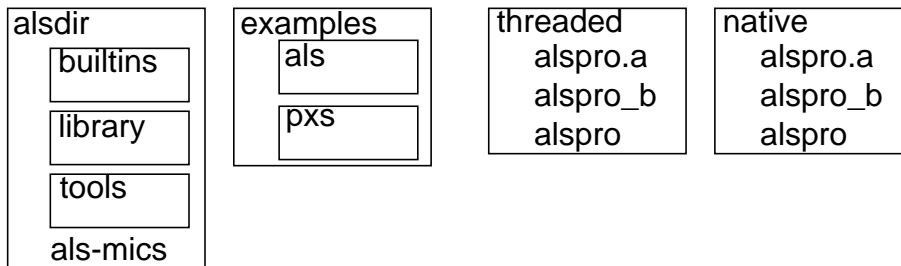
tive' subdirectory present in your particular distribution; also, in some distributions,

there will be no 'alspro' in the threaded or native subdirectories and no 'als-mics' in *alsir* (if *als-mics* is present, there will be an *alspro* in *threaded*, and an *alspro* in *native* if *native* is present.)   Below is a compact description of these components:

<u>alsdir</u>
      builtins   -- sources for builtins files
      library   -- sources for library files
      tools   -- sources for tools not in library
           cinterf   -- generating C interfaces tool
      als-mics (als-mics.exe)   -- packaging tool

<u>examples</u>
   als   -- sources for elementary examples
   pxs   -- sources for examples and fragments from "Prolog and Expert Systems"

<u>threaded</u>   <u>threaded or bytecode executables</u>
   alspro.a   -- linkable library
   alspro_b   -- executable without builtins linked in by als-mics; builtins are loaded upon startup;
   alspro   -- executable with builtins linked in by als-mics (contains alspro_b)

<u>native</u>   <u>native code executables</u>
   alspro.a   -- linkable library
   alspro_b   -- executable without builtins linked in by als-mics; builtins are loaded upon startup;
   alspro   -- executable with builtins linked in by als-mics (contains alspro_b)

To utilize the ALS Prolog development environment, one needs to organize (some)

executables together with alsdir in a structure such as one of the following:

```
┌─────────────────────────────┐   ┌─────────────────────────────┐
│ ??dir??                     │   │ ??dir??                     │
│         ┌──────────────────┐│   │         ┌──────────────────┐│
│  alspro │ alsdir           ││   │  alspro │ alsdir           ││
│         │ ┌───────────────┐││   │ alspro_b│ ┌───────────────┐││
│         │ │ builtins      │││   │         │ │ builtins      │││
│         │ └───────────────┘││   │         │ └───────────────┘││
│         │ ┌───────────────┐││   │         │ ┌───────────────┐││
│         │ │ library       │││   │         │ │ library       │││
│         │ └───────────────┘││   │         │ └───────────────┘││
│         │ ┌───────────────┐││   │         │ ┌───────────────┐││
│         │ │ tools         │││   │         │ │ tools         │││
│         │ └───────────────┘││   │         │ └───────────────┘││
│         │    als-mics      ││   │         │    als-mics      ││
│         └──────────────────┘│   │         └──────────────────┘│
└─────────────────────────────┘   └─────────────────────────────┘
```
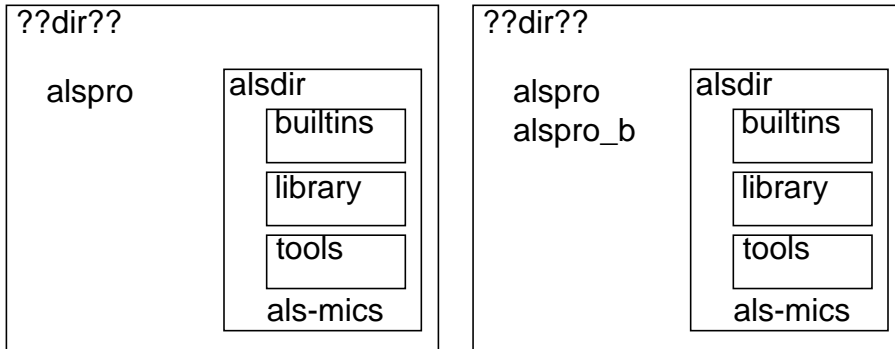
The directory *??dir??* can be a personal directory or a public directory such as */usr/ local/bin* or *\bin.*   Which of the organizations above you choose will depend on whether you wish to modify any of the Prolog-defined builtin predicates: if not, simply choose the right-hand organization.

Depending on the components available in your distribution, you normally should choose the executable(s) to install in the following order:

alspro -- native code version

alspro_b -- native code version

alspro -- threaded version

alspro_b threaded version

First, the native code compilers, where available, produce much faster code than the threaded versions. Hence, choose native over threaded. There is no functional difference between alspro and alspro_b (both native, or both threaded). Simply, al-spro will start up faster because all of the builtins are packaged up in it, while alspro_b must load the *.obp files for the builtins. Note that both alspro and alspro_b dynamically load files from the library when first encountering a call to a particular library predicate.

Mac [Macintosh special considerations](#)

In this case,some useful organizations of the executables might be as follows::

```
┌─────────────────────────────────┐   ┌─────────────────────────────────┐
│ ??dir??                         │   │ ??dir??                         │
│                                 │   │                                 │
│ alspro_motif ┌────────────────┐ │   │ alspro_motif ┌────────────────┐ │
│              │ alsdir         │ │   │  alspro      │ alsdir         │ │
│              │  ┌───────────┐ │ │   │              │  ┌───────────┐ │ │
│              │  │ builtins  │ │ │   │              │  │ builtins  │ │ │
│              │  └───────────┘ │ │   │              │  └───────────┘ │ │
│              │  ┌───────────┐ │ │   │              │  ┌───────────┐ │ │
│              │  │ library   │ │ │   │              │  │ library   │ │ │
│              │  └───────────┘ │ │   │              │  └───────────┘ │ │
│              │  ┌───────────┐ │ │   │              │  ┌───────────┐ │ │
│              │  │ tools     │ │ │   │              │  │ tools     │ │ │
│              │  └───────────┘ │ │   │              │  └───────────┘ │ │
│              │   als-mics     │ │   │              │   als-mics     │ │
│              └────────────────┘ │   │              └────────────────┘ │
└─────────────────────────────────┘   └─────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│ ??dir??                             │
│              ┌────────────────────┐ │
│              │ alsdir             │ │
│  alspro_motif│  ┌───────────────┐ │ │
│  alspro_motif0│ │ builtins      │ │ │
│  alspro_x    │  │ x.pro         │ │ │
│  alspro_x0   │  │ motif.pro     │ │ │
│  alspro      │  └───────────────┘ │ │
│  alspro_b    │  ┌───────────────┐ │ │
│              │  │ library       │ │ │
│              │  └───────────────┘ │ │
│              │  ┌───────────────┐ │ │
│              │  │ tools         │ │ │
│              │  └───────────────┘ │ │
│              │   als-mics         │ │
│              └────────────────────┘ │
└─────────────────────────────────────┘
```
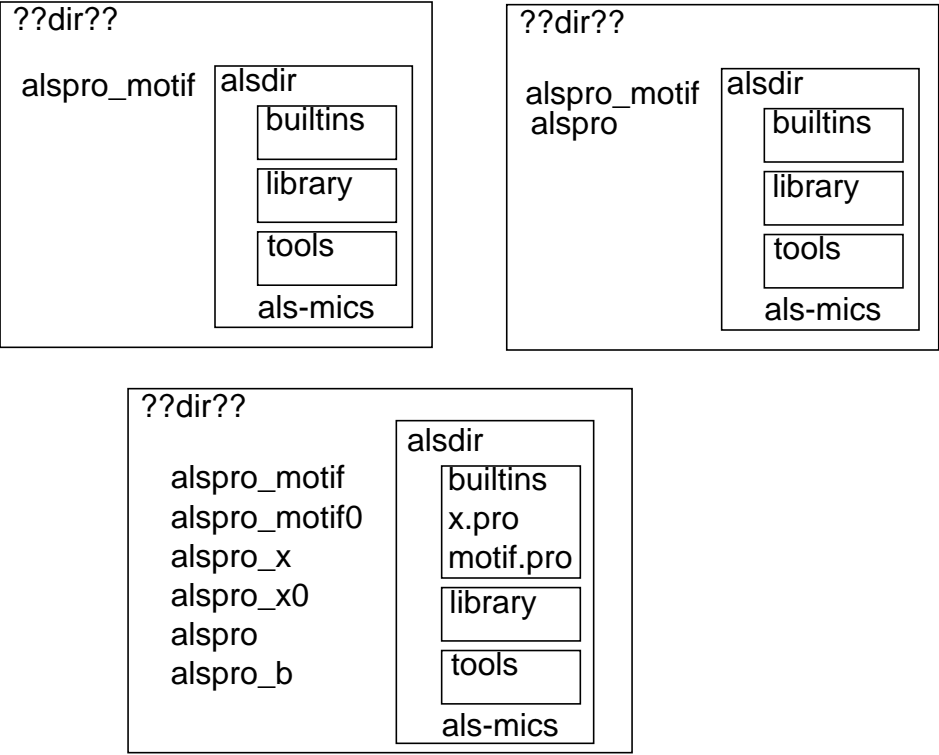
For most development, one of the top two organizations would be desirable. The
bottom organization would be chosen only if one were making modifications to the
builtins or the low-level parts of the interfaces.

3.4 Macintosh Special Considerations

4 On-Line Manual Readers

All ALS manuals are provided in on-line format in the form of Adobe Acrobat *pdf* documents which require the free Acrobat reader.

Readers for these formats are availabe free from Adobe over the internet, as follows:

> http://www.adobe.com/acrobat

Alternatively, one may use anonymous ftp to connect to

> ftp:// ftp.adobe.com

and find the various readers in the directories off the path

> /pub/adobe/Applications/Acrobat

5 C - GNU, DJGPP -- Sources & Info

On a number of platforms, we have used versions of the GNU tools from the Free Software Foundation. The FSF GNU General Public License (GPL) and GNU LIbrary General Public License (LGPL) are included in this document.

We don't automatically include the GNU tools in our shipments of the ALS Prolog development systems for three reasons:

1. Many people already have the tools.
2. Some people don't need or want the GNU tools.
3. The complete collection, including tool sources, is huge.

If you need (or simply want) to acquire some of the GNU tools (and possibly the sources to them), here's how to go about it. The easiest way is to download the appropriate files from:

   ftp://prep.ai.mit.edu/pub/gnu

GNU software is mirrored at many sites; a fairly extensive list of mirrors appears in

   ftp://prep.ai.mit.edu/pub/gnu/GNUinfo/FTP

If you need/want to acquire the GNU tools, and there is no way you can use the Internet, you can obtain them from ALS or from FSF. ALS can supply you with disks of the tools we use, but we'll quote you an outrageous price, simply reflecting the fact that we're not set up to do that sort of thing on a routine basis. It would be much better for you to spend your money either at the Free Software Foundation::

   Free Software Foundation, Inc.
   59 Temple Place - Suite 330
   Boston,
   MA 02111-1307 USA
   Emaill: gnu@prep.ai.mit.edu
   Fax: +1-617-542-2652
   Phone: +1-617-542-5942

6 Contacting ALS

The most important address is the URL of our world wide <u>web site</u>:

http://www.als.com

Updates to the manuals, supplied and contributed source code, etc., will all be posted here.

To contact us by <u>email</u>:

support@als.com

info@als.com

sales@als.com

<u>U.S. mail</u>:

Applied Logic Systems, Inc.

P.O. Box 175

Cambridge, MA 02140

<u>Fax</u>:

1-(617) 497-3963

<u>Telephone</u>:

1-(617) 497-0100

7 Acknowledgements

ALS Prolog was written by Kenneth A. Bowen, Kevin A. Buettner, Ilyas Cicekli, and Keith M. Hughes with assistance from DJ Delorie, Ron DiNapoli, Chuck Houpt, Prabahakaran Raman, Andrew Turk, and Christopher M. White. The ObjectPro tools were written by Kenneth A. Bowen.

The *ALS Prolog User's Guide* was written by Kenneth A. Bowen with assistance from the ALS Staff.

This document was prepared with FrameMaker on Sun and HP workstations, and Macintosh. The pdf format files for this document were created using Adobe Acrobat Distiller. The various versions of the Help files were created using a combination of FramMaker, the Omni Systems DCL filter, and Blue Sky Software's RoboHTML and RoboHelp.

The Unix versions of ALS Prolog were created using gcc and other GNU tools. The Macintosh and MS Windows versions of ALS Prolog were created using Metrowerks' Codewarrior.