



# Installation Guide

**Zinc® Application Framework™  
Version 5**

Zinc Software Incorporated  
Pleasant Grove, Utah

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## **ACKNOWLEDGEMENTS**

The ChartFolio framework used by ZafChart is licensed software ©1994-97 DPC Technology Corporation. The XPM library used by ZafImage on Motif is licensed software ©1989-95 GROUPE BULL. The MetaWINDOW graphics primitives used by ZafDisplay on DOS is licensed software ©1988-96 Metagraphics, Inc.

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# Contacting Zinc

## **Worldwide**

### *Electronic Contact Information*

Sales: [info@zinc.com](mailto:info@zinc.com), [sales@zinc.com](mailto:sales@zinc.com)

Technical Support: [support@zinc.com](mailto:support@zinc.com)

Training and Consulting: [services@zinc.com](mailto:services@zinc.com)

Web: <http://www.zinc.com/>

Ftp: <ftp://ftp.zinc.com/>

CompuServe: GO ZINC

## **North America**

Zinc Software Incorporated

405 South 100 East

Pleasant Grove, Utah 84062 USA

Tel: 1-801-785-8900

Sales: 1-800-638-8665

Support: 1-801-785-8998

Fax: 1-801-785-8996

Zinc Software Services, Inc.

42627 Garfield, Suite 214

Clinton Township, Michigan 48038 USA

Tel: 1-810-228-4900

Fax: 1-810-228-6633

## **Europe**

Zinc Software (UK) Ltd.

106-108 Powis Street

London, SE18 6LU United Kingdom

Tel: +44 (0)181 855-9918

Fax: +44 (0)181 316-2211

BBS: +44 (0)181 317-2310

Email: [europe@zinc.com](mailto:europe@zinc.com)

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# Introduction

Thank you for selecting Zinc Application Framework version 5!

ZAF is the most advanced C++ class library ever developed for the creation of portable and international user interfaces. In addition to the class library, ZAF 5 includes Zinc Designer (a visual design tool), utility programs, examples, tutorials, and extensive electronic documentation.

Installing ZAF 5 is more than just copying files or running a simple installation program. The ZAF 5 installation process is designed to provide an important introduction to the Zinc development environment—including building class libraries and example programs from supplied source code. Although the installation process may seem detailed, developers will find the information gained during installation to be invaluable when using ZAF 5 for application development.

This installation guide provides step-by-step instructions for

- downloading ZAF 5, if not obtained on CD-ROM
- reviewing ZAF license agreements
- installing ZAF on your system
- configuring your development environment
- building ZAF libraries of your choosing
- building ZAF example programs
- obtaining technical support, if necessary

Some chapters in this “Installation Guide” are divided into sections corresponding to platforms currently supported by ZAF 5. Follow *only* those instructions that pertain to the platform(s) for which you are installing.

Free installation technical support is available to all users of ZAF 5. Please contact Zinc immediately if you have questions during this process. Complete technical support information can be found in the “Obtaining Technical Support” section of this guide.

Enjoy Zinc Application Framework version 5!

# Downloading ZAF 5

Zinc Application Framework is available on CD-ROM, or it may be downloaded from many electronic forums including

- Zinc's [Web](#) site
- Zinc's [FTP](#) server
- many of Zinc's authorized resellers and partners
- other public forums

Before downloading any files, consult the "[Required Files](#)" section of this chapter. Instructions for downloading from Zinc's sites follow.

## CD-ROM

Developers with CD-ROM distributions may skip this chapter.

The "Personal (Free) Version" of ZAF 5 is currently unavailable on CD-ROM. All "Professional Version" customers automatically receive CD-ROM media which includes all platform modules. Members of Zinc's Customer Assurance Plan (CAP) receive regular upgrades on CD-ROM which also include all platform modules. HOWEVER, YOU MAY ONLY INSTALL AND USE THE PLATFORM MODULE(S) DESIGNATED ON THE LICENSE CERTIFICATE PROVIDED WITH THE SOFTWARE. For more information about different ZAF versions and software licensing, please refer to the "Installing ZAF" section of this manual, and the license agreements found at the end of this manual.

To purchase ZAF on CD-ROM, contact Zinc Software. Contact information can be found in the "Contacting Zinc" section of this manual.

## Web

Zinc's home page on the world wide web may be reached via:

<http://www.zinc.com>

To download the Personal (Free) Version, select "Download Free Version" and follow the instructions. Additional software is available for downloading by those who "Register" their Personal Version (available online) and by those who purchase a "Professional Version" license (including those members of Zinc's "Customer Assurance Plan (CAP))" by selecting the download areas for these customers. Passwords are required for these areas of the web.

NOTE: The most current download instructions will *always* be found on the web itself.

## FTP

The Zinc FTP server may be reached at:

```
ftp.zinc.com
```

Anonymous logins are accepted using any ftp client including WINFTP, FTP, or a web browser such as Netscape Navigator or Microsoft Internet Explorer.

If requested, enter “anonymous” as your login name, and use your complete email address when prompted for a password. Once authenticated, move into the ZAF 5 distribution directory “/zaf.” Command-line users will enter

```
cd /zaf
```

Before downloading files, be sure to set “binary transfer” mode. Command-line users will enter

```
bin
```

Finally, download the necessary files. Command-line users will enter

```
get <filename>
```

(or for multiple files)

```
mget <filespec>
```

FTP servers may be accessed using most web browsers as well. Simply enter:

```
ftp://ftp.zinc.com
```

for the URL and navigate the directory display presented. Double click files to download.

## Required Files

Zinc Application Framework version 5 is a large, complex product. As a portable development tool, much of its source code is shared between the various platforms supported by ZAF. This source code is referred to as “Shared Code.” Additional, non-portable code is also required to implement the portable functionality on each platform. This source code is referred to as “Platform Specific” code.

When downloading ZAF 5 (or an update), you must obtain both Shared Code and Platform-Specific Code. In addition, documentation and example programs are extremely helpful when using ZAF and are the most frequently updated portions of the product.

The following sections list the various archive file formats provided by Zinc Software. Multiple formats are provided to make file access as easy as possible for programmers on all platforms. Each file is provided in the format most likely to appeal to programmers using that format. For example, the “ZIP” format is the format most often used by developers on Windows, therefore Zinc supplies code for Windows platforms in this format.

Each table lists all files available in a given format. Files required for proper use of Zinc Application Framework are indicated by the word “*required.*” Other “*optional*” files may be downloaded as well.

If downloading ZAF for multiple platforms, you only need to download “Shared” files once. These may be used, without change, on all ZAF supported platforms.

To simplify downloads, we have included all required files into a few archives. The shared files are found in shared.zip and shared.tar.Z, and platform-specific files are found in windows.zip and motif.<os>.tar.Z. For example, to download required files for ZAF on Microsoft Windows, you need only download shared.zip and windows.zip. These files’ contents are explained below.

ZIP Archive Format  
(PC Platforms)

Zinc’s PKZIP archives contain Shared code (portable to all platforms) and platform-specific code for Microsoft Windows as well as examples and tutorials, electronic documentation, etc.

File	Contents
zafinc.zip	Shared (portable) header files. <b><i>Required.</i></b>
zafsrc.zip	Shared (portable) library source code files. <b><i>Required.</i></b>
zafuni.zip	Shared (portable) Unicode files (non-personal versions). <b><i>Required for Unicode.</i></b>
zafreg.zip	Notebook class source code files (non-personal versions). <b><i>Required for ZafNotebook.</i></b>
zafpro.zip	Table class source code files (professional version). <b><i>Required for ZafTable.</i></b>
zafdoc.zip	Online documentation (professional version). <b><i>Required for professional version.</i></b>
zafdocn.zip	Online documentation (non-printable, non-indexed). <b><i>Required for non-professional versions.</i></b>
zafread.zip	Readme text files. <b><i>Required.</i></b>
wininst.zip	Installation files for Microsoft Windows. <b><i>Required for Windows.</i></b>
winsrc.zip	Windows library source files. <b><i>Required for Windows.</i></b>
winbin.zip	Windows binary files: Zinc Designer, utilities, data, etc. <b><i>Required for Windows.</i></b>
dosinst.zip	Installation files for MS-DOS. <b><i>Required for MS-DOS.</i></b>
dossrc.zip	MS-DOS library source files. <b><i>Required for MS-DOS.</i></b>
dosbin.zip	MS-DOS binary files: Zinc Designer, utilities, data, etc. <b><i>Required for MS-DOS.</i></b>



File	Contents
acrob????.exe	Adobe Acrobat reader with search capability for Windows. <b>Required to view electronic documentation.</b> May be obtained from other sources including Adobe at <a href="http://www.adobe.com">http://www.adobe.com</a>
pkunzip.exe	Uncompresses files with zip extension. <b>Required to uncompress files.</b> May be obtained from other sources.
zafexm.zip	Example programs and tutorials. <b>Strongly recommended.</b>
zafconv.zip	ZAF 4 to ZAF 5 data file conversion utilities, source code, and example conversions. <b>Optional.</b>
zafattr.zip	Library test suite source code (attribute tests). <b>Optional.</b>
cf_zaf.zip	Third-party ChartFolio charting library source files. <b>Optional, but required for use of the ZafChart object.</b>
shared.zip	cf_zaf.zip, zafexm.zip, zafinc.zip, zafread.zip, zafsrc.zip
windows.zip	winbin.zip, wininst.zip, winsrc.zip
dos.zip	dosbin.zip, dosinst.zip, dossrc.zip

tar.Z Archive Format  
(Unix Platforms)

Zinc's tar archives contain Shared code (portable to all platforms) and platform-specific code for X/Motif as well as examples and tutorials, electronic documentation, etc.

File	Description
zafinc.tar.Z	Shared (portable) header files. <b>Required.</b>
zafsrc.tar.Z	Shared (portable) library source code files. <b>Required.</b>
zafuni.tar.Z	Shared (portable) Unicode files (non-personal versions). <b>Required for Unicode.</b>
zafreg.tar.Z	Notebook class source code files (non-personal versions). <b>Required for ZafNotebook.</b>
zafpro.tar.Z	Table class source code files (professional version). <b>Required for ZafTable.</b>
zafdoc.tar.Z	Online documentation (professional version). <b>Required for professional version.</b>
zafdocn.tar.Z	Online documentation (non-printable, non-indexed). <b>Required for non-professional versions.</b>
zafread.tar.Z	Readme text files. <b>Required.</b>

File	Description
mtfinst.<os>.tar.Z	Installation files for Motif. Replace “<os>” with an appropriate operating system identifier. <b><i>Required for Motif.</i></b>
mtfsrc.tar.Z	Motif library source files. <b><i>Required for Motif.</i></b>
mtfbin.tar.Z	Motif binary data files. <b><i>Required for Motif.</i></b>
mtfbin.<os>.tar.Z	Motif Zinc Designer executable. Replace “<os>” with an appropriate operating system identifier. <b><i>Required for Motif.</i></b>
[acrobat reader]	Adobe Acrobat reader with search capability for your platform. <b><i>Required to view electronic documentation.</i></b> May be obtained from other sources including Adobe at <a href="http://www.adobe.com">http://www.adobe.com</a>
zafexm.tar.Z	Example programs and tutorials. <b><i>Strongly recommended.</i></b>
zafconv.tar.Z	ZAF 4 to ZAF 5 data file conversion utilities, source code, and example conversions. <b><i>Optional.</i></b>
zafattr.tar.Z	Library test suite source code (attribute tests). <b><i>Optional.</i></b>
cf_zaf.tar.Z	Third-party ChartFolio charting library source files. <b><i>Optional, but required for use of the ZafChart object.</i></b>
xpm.tar.Z	Third-party XPM library source files for Motif. <b><i>Optional, but required for use of the ZafImage object.</i></b>
shared.tar	cf_zaf.tar.Z, zafexm.tar.Z, zafinc.tar.Z, zafread.tar.Z, zafsrc.tar.Z
motif.<os>.tar	mtfbin.tar.Z, mtfbin.<os>.tar.Z, mtfinst.<os>.tar.Z, mtfsrc.tar.Z, xpm.tar.Z

# Licensing ZAF 5

Zinc Application Framework version 5 is available in two versions—“Personal” (Free) and “Professional”—each subject to the terms and conditions of a separate license agreement. Before actually installing ZAF 5, an understanding of basic licensing terms is necessary. *During the upcoming installation process you will be asked if you have read and accepted the terms and conditions of the appropriate license agreement.*

## Notice

THIS SECTION OF THE “INSTALLATION GUIDE” IS INTENDED TO PROVIDE A PLAIN ENGLISH DESCRIPTION OF MAJOR LICENSE AGREEMENT PROVISIONS. IT IS NOT COMPLETE AND NEITHER SUBSTITUTES FOR, NOR SUPERCEDES THE LICENSE AGREEMENTS THEMSELVES. YOU ARE REQUIRED TO READ THE APPROPRIATE LICENSE AGREEMENT AND CONSENT TO ITS TERMS AND CONDITIONS DURING THE INSTALLATION OF ZAF 5. COMPLETE LICENSE AGREEMENTS MAY BE FOUND AT THE END OF THIS MANUAL.

## Basic Terms

Both ZAF license agreements include many of the same terms and conditions, most of which are typical to development tools in general. A few worth mentioning include

- Per seat, per platform licensing

ZAF 5 is licensed on a per-developer, per-platform basis (i.e., a license to the Shared Code is required for each individual developer as well as a license to the Platform Module for each platform used by that developer). Multiple developers require multiple Shared Code licenses, each with the appropriate Platform Module license(s) corresponding to the platform(s) used by that developer.

- Zinc copyright notice requirement

All applications developed using Zinc Application Framework must display a valid Zinc copyright notice. Typically, this notice is contained in a “help, about” window.

- Non-compete requirement

ZAF 5 may not be used to develop an application that is competitive with, or may be used in lieu of ZAF 5.

**Personal  
(Free) Version**

The “Personal Version License Agreement” allows individuals to

- use the ZAF Personal Version software to develop non-commercial, non-distributable, personal-use-only applications (i.e., the only end-user of the application you build with the Personal Version software is you);
- distribute complete and unmodified copies of the ZAF Personal Version software (i.e., only those Personal Version software files listed as “distributable” on Zinc’s web server (<http://www.zinc.com/>));
- distribute source code to applications developed using the Personal Version. Executables may not be distributed.

ANY OTHER USE NOT LISTED ABOVE REQUIRES THE PURCHASE OF A PROFESSIONAL VERSION LICENSE.

**Professional  
Version**

In addition to Personal Version benefits, the “Professional Version License Agreement” allows individuals and entities to use the Zinc Application Framework Professional Version software designated in the License Certificate to

- develop applications which can be freely distributed in executable or source code form without additional run-time fees;
- distribute some ZAF binary files with a ZAF-based application (e.g., a ZAF DLL or shared library);
- print reference documentation for personal use;
- gain access to Zinc professional technical support and the Customer Assurance Plan.

EACH PROFESSIONAL VERSION DEVELOPER MUST BE PROPERLY LICENSED FOR ALL PLATFORM(S) USED BY THAT DEVELOPER.

**Registered  
Software**

As a benefit of registering their software, “Personal Version” developers gain access to additional ZAF objects and functionality. Likewise, “Professional Version” developers have access to still more objects and functionality.

Restricted-access software components may not be re-distributed. All other ZAF software (i.e. software obtained without passwords or other restrictions) may be freely re-distributed *in its original form* (i.e., the original archive file(s)).

# Installing ZAF 5 from CD-ROM

Zinc Application Framework is available on CD-ROM or via electronic download. Installation methods differ. Please choose the one appropriate for you.

SEVERAL FILES NECESSARY FOR USING THE ZAF LIBRARIES ARE ENCRYPTED. YOU MUST RUN THE INSTALLATION FILES DESCRIBED BELOW TO BE ABLE TO USE THE ZAF LIBRARIES.

## Downloaded Files

If installing from downloaded files, please consult the chapter “Installing ZAF 5 from Downloaded Files.”

## CD-ROM

To install from CD-ROM you must first make the CD accessible on your system. When mounting the CD on a Unix system the CD must be mounted as an ISO-9660 file system or the system will be unable to read the ZAF CD. Please consult your operating system documentation or system administrator for assistance. Zinc cannot provide technical support for the attachment of CD-ROM devices.

## Run Install

1. Ensure that you have full access privileges to the location you wish to use for Zinc Application Framework version 5.  
You must be able to read, write, modify, and delete in the directory you will use for ZAF 5. Note: on Unix systems, the installation program will also use the “/tmp” directory for intermediate files.
2. Change your default workspace to be the CD-ROM.
  - On Windows, open a Win95/NT Explorer or Win3x File Manager window and select the CD-ROM. If running Windows 95 or NT you may also select the CD-ROM using a DOS prompt (see below).
  - On Unix, or at a Windows/DOS prompt, use “cd” to select this directory. For example, “cd /mnt/cdrom”.
  - On MS-DOS, make the CD-ROM drive current..
3. Run the installation program.
  - On Windows, select and run the “winstall” graphical installation program. If running from a Windows/DOS prompt, type “winstall”.
  - On Unix, type “minstall” to run the install script. This script will determine the Unix system and call the correct install program.
  - On MS-DOS, type “install” to run the graphical installation program.
4. Select which version of ZAF you are installing.

Graphical Install—  
Provide Information

As discussed in the “Licensing ZAF 5” chapter, Zinc Application Framework is available in two versions: Personal and Professional. In addition to the enormous differences in software licensing terms, these versions also differ technically. The Professional Version includes all ZAF 5 objects and functionality while the Personal Version lacks the ZafNotebook and ZafTable objects, access to Unicode (double-byte internationalization), and printable reference documentation. Personal Version customers may gain access to ZafNotebook and Unicode by registering their software with Zinc.

5. (Optional) Enter your decryption key.

If you select the “Registered Files” or “Professional Version” options you will be prompted for a decryption key. The decryption key is used to access the protected files associated with the restricted installation options.

Note: The decryption key is not evaluated at this point! If you enter an invalid decryption key you will be unable to build libraries or applications after the installation is complete. If you do not have a required decryption key, you may obtain one immediately by contacting Zinc sales.

6. Review and Accept the appropriate license agreement.

You must accept the license agreement to install ZAF 5. “Personal Version” and “Professional Version” license agreements are substantially different. Please review the agreement prior to accepting the terms. For more information refer to the “Licensing ZAF 5” chapter and the printed license agreements, all in this Installation Guide.

If you do not accept the license agreement you may return Professional Version software for a refund. See the license agreement for details.

7. Select the directory in which ZAF 5 should be installed.

ZAF 5 includes several subdirectories that are best organized underneath a ZAF parent directory. For example, a good choice for an installation directory would be “\zaf5”.

If the directory you specify does not exist, Zinc will prompt you before creating it. Note: Unix customers may not use macros in the path name (e.g., “~”, “\$HOME”).

Software Components

8. Select the ZAF software components to install.

Components and their descriptions are listed below. Some components are required. Others must be separately licensed.

- Library Source Code (Required)

This component includes everything necessary to build the ZAF 5 libraries and end user applications. All shared and platform-specific header files, source code files and make files are included.

Professional Version customers receive all library features; Personal Version customers may not receive Notebook, Printer, Splitter, Table, and Unicode support.

- Examples and Tutorials (Recommended)

This component includes source code and make files to many example and tutorial programs. These programs are essential references when learning to program using Zinc Application Framework. ZAF documentation refers to these files. These files are strongly recommended.

- Electronic Documentation and Readme Files (Recommended)

ZAF 5 includes several manuals shipped in electronic format and available in hard copy form by separate purchase. Installation, tutorial, and reference materials are included. The information included in these files is mandatory when using Zinc Application Framework. These files are strongly recommended.

- ZafChart and DPC ChartFolio, limited version (Recommended)

ZafChart is a data charting class implemented as a wrapper around ChartFolio—a sophisticated third-party charting library from DPC Technology. ZAF 5 includes a limited, two-dimensional version of ChartFolio with source code. You must install this component if you intend to use ZafChart in your application.

Extended versions of ChartFolio support three-dimensional charting and runtime manipulation. These versions are available from Zinc or DPC Technology.

- Unicode Character Support

For internationalization support, ZAF 5 supports three character encoding modes: local code page, ISO-8859, and Unicode. Local code page and ISO-8859 (default) are included in the base component.

Unicode mode allows double-byte character encoding and single executable support for languages worldwide—including Asian languages. To take advantage of this capability you must build the ZAF libraries using the Unicode support found in this component.

Unicode Character Support is available to Professional Version and Registered developers only and must be licensed (purchased) separately.

- Adobe Acrobat Reader (Required to read electronic documents)

Zinc's electronic documentation files are stored in Adobe PDF (Portable Document Format) format. A free Adobe Acrobat reader must be used to read or print these files. Zinc recommends a version of the reader with full-text search capability since the ZAF Professional Version documentation files support full text search.

Note: Acrobat readers are unavailable or outdated for some platforms, including Digital Unix and SCO. Refer to the Adobe web site at [www.adobe.com](http://www.adobe.com) for the latest readers and information.

- **ZAF 4 to ZAF 5 Conversion Kit**

This component includes two example programs from ZAF 4, converted ZAF 5 source code and data files, and executable utility programs to assist in converting source code. This component is not useful to developers who are not converting projects from ZAF 4.

- **Library Test Suite**

This component contains a set of source code to applications used internally by Zinc Software to test Zinc Application Framework version 5. These programs may be helpful to developers creating new objects for inclusion in ZAF 5. The coding techniques used in these programs are not typical of end-user applications and will generally not be helpful in learning ZAF 5.

*PC platform customers may skip to installation step 12.*

#### Unix Options

9. (Unix only) Select the platforms to install.

Source code for the Zinc libraries and applications are shared between all platforms, including various Unix systems. Binary files are system-specific, however. Select those platforms you will use as primary development environments. The installation program will copy binary executable files for the platforms you select.

**IMPORTANT:** You must separately license each Unix platform you will use regardless of the executables you intended to create. Zinc offers a single Unix platform license and, for the price of two platforms, a license to develop on all Unix platforms.

10. (Unix only) Select your development environment.

Make files differ from compiler to compiler. By default, ZAF 5 allows only one form of the make files to be present at any time. Select the development environment you will initially use.

You may reconfigure make files at any time by running the stand-alone “mconfig” script. mconfig is automatically chained by the graphical installation utility you are now running.

11. (Unix only) Select your target library type.

ZAF 5 may be built as either an archive (static) or shared (dynamic) library. Archive libraries are linked into your executable. Shared libraries must be distributed separately from your executable. In general, shared libraries are only necessary if you will distribute multiple executables and would like to save disk space. Not all compilers support shared libraries. Your selection will be used to configure make files.



You may reconfigure make files at any time by running the stand-alone “mconfig” script. mconfig is automatically chained by the graphical installation utility you are now running.

## 12. Review installation response messages.

The installation process will copy files from the CD-ROM and may decrypt protected software. When this process is complete, you may review any error messages generated by the installation. Possible problems include failed directory or file creation, or an invalid decryption key.

If you encounter problems, please contact Zinc.

## Configure Environment

## 13. (PC platforms only) Configure your development environment.

Refer to “Configuring your Development Environment” in this Installation Guide.

## File Locations

You may want to familiarize yourself with the installed directory structure before continuing. The ZAF tree looks like this:

```

zaf (root of ZAF tree)
  attrtest (ZAF attribute test programs source)
  bin (PC designers and data files)
    mtfbin.aix4 (AIX 4 designer and data files)
    mtfbin.hpux9 (HP-UX 9 designer and data files)
    mtfbin.irix5 (Irix 5 designer and data files)
    mtfbin.linux2 (Linux 2 designer and data files)
    mtfbin.osf1 (Digital Unix designer and data files)
    mtfbin.sco (SCO designer and data files)
    mtfbin.sun4 (SunOS 4 designer and data files)
    mtfbin.sun5 (Solaris 2 designer and data files)
  cf_zaf (ChartFolio library source)
  convert (ZAF 4 to 5 conversion utilities and examples)
  doc (ZAF electronic documentation)
  example (ZAF example programs)
  include (ZAF library headers)
  readme (ZAF informational text files)
  source (ZAF library source)
    intl (international data file source and library source)
    unicode (Unicode support source and i18n.znc data file)
  xpm (Motif only--3rd party XPM library source)

```

# Installing ZAF 5 from Downloaded Files

Zinc Application Framework is available on CD-ROM or via electronic download. Installation methods differ. Please choose the one appropriate for you.

SEVERAL FILES NECESSARY FOR USING THE ZAF LIBRARIES ARE ENCRYPTED. YOU MUST RUN THE INSTALLATION FILES DESCRIBED BELOW TO BE ABLE TO USE THE ZAF LIBRARIES.

## CD-ROM

If installing from CD-ROM, please refer to the chapter “Installing ZAF 5 from CD-ROM.”

## ZIP files

1. Uncompress all files.

After downloading the files from any of our electronic sites, place them together in a directory chosen to be the root ZAF directory. ZAF 5 uses several subdirectories that are best organized underneath a ZAF parent directory. For example, a good choice for an installation directory might be “\zaf5”.

After placing the files in this directory and making it the current directory, unzip each file with the -d option using the pkunzip utility. This will create the entire ZAF tree and place the uncompressed files in their proper locations. If you have downloaded the registered or professional version, be sure to uncompress zafreg.zip and/or zafpro.zip last, since they replace existing files in the tree to add functionality to ZAF.

```
pkunzip -d *.zip
```

2. Read and accept the license agreement.

Read and accept the appropriate license agreement found in this manual (and found in the license.txt file in the README directory). The license.txt file may be opened and viewed with any text editor.

3. Run the wininstall (MS Windows) or install (MS-DOS) batch file.

When run, these batch files prompt you to confirm that you have read and accepted the license agreement. To agree, choose “y”; otherwise choose “n” to terminate the installation. Upon acceptance, the batch files decrypt certain files necessary to use ZAF. If ZIP files for both MS Windows and MS-DOS have been downloaded, only one of the batch files needs to be run.

*NOTE: If you don't specify "y" in the wininstall script at this time, you will be unable to build the ZAF libraries since some files will remain encrypted.*

## tar.Z files

### 1. Uncompress all files.

After downloading the files from any of our electronic sites, they should be placed in a directory chosen to be the root ZAF directory. ZAF 5 uses several subdirectories that are best organized underneath a ZAF parent directory. For example, an installation directory might be "/users/myaccount/zaf5".

Uncompress the .Z files by using the Unix uncompress utility for each file. For example:

```
uncompress zafsrc.tar.Z
```

After the files have been uncompressed, tar each of them with the -xvf options to create the ZAF tree. If you have downloaded the registered or professional version, be sure to tar zafreg.tar and/or zafpro.tar last, since they replace existing files in the tree to add functionality to ZAF.

```
tar -xvf zafsrc.tar
```

The complete directory tree will be created and the ZAF files will be placed in the appropriate locations.

### 2. Read and accept the license agreement.

Read and accept the appropriate license agreement found in this manual (and in the license.txt file in the readme directory). The license.txt file may be opened and viewed with vi or any other text editor.

### 3. Run the mininstall script.

- When run, the mininstall script prompts you to confirm that you have read and accepted the appropriate license agreement. To agree, choose "y"; otherwise choose "n" to terminate the installation.

*NOTE: If you don't specify "y" in the mininstall script at this time, you will be unable to build the ZAF libraries since some files will remain encrypted.*

- You are next prompted to select the system to install for. A numbered list of systems is presented. Type the number according to the system you are installing for. For example, IBM AIX is "4".
- Next, you are prompted for the compiler for which the make files will be configured. A numbered list of compilers is presented. For most systems, this will be either the native compiler, or the GNU compiler. Type the num-

ber according to the compiler you will be using. For example, the IBM AIX native compiler is “1.”

- If the system and compiler support shared libraries, you will next be prompted to choose between archived and shared libraries; otherwise make files will be configured to build and use archived libraries.
- After making the previous selections, the current default values for the chosen system and compiler are displayed. These values will be typical for the selections that were made. Before modifying them, consult with the system administrator to be sure of the appropriate values. The installation script next modifies the source file extensions, examples, and make files to reflect the choices previously selected. Finally, mininstall decrypts certain files necessary to use ZAF.

## File Locations

You may want to familiarize yourself with the installed directory structure before continuing. The ZAF tree should look like this:

```
zaf (root of ZAF tree)
attrtest (ZAF attribute test programs source)
bin (PC designers and data files)
    mtfbin.aix4 (AIX 4 designer and data files)
    mtfbin.hpux9 (HP-UX 9 designer and data files)
    mtfbin.iris5 (Irix 5 designer and data files)
    mtfbin.linux2 (Linux 2 designer and data files)
    mtfbin.osf1 (OSF/1 designer and data files)
    mtfbin.sco (SCO designer and data files)
    mtfbin.sun4 (SunOS 4 designer and data files)
    mtfbin.sun5 (Solaris 2 designer and data files)
cf_zaf (ChartFolio library source)
convert (ZAF 4 to 5 conversion utilities and examples)
doc (ZAF electronic documentation)
example (ZAF example programs)
include (ZAF library headers)
readme (ZAF informational text files)
source (ZAF library source)
    intl (international data file source and library source)
    unicode (Unicode support source and il8n.znc data file)
xpm (Motif only--3rd party XPM library source)
```

# Configuring your Development Environment

Before building ZAF libraries or applications the development environment must be configured. Configuration consists of setting environment variables with information about your compiler.

## PC Compilers

Zinc provides a custom make utility called `zmake` (found in the `BIN` directory). Like most compiler-supplied make utilities, `zmake` relies on environment variables to find other necessary components such as compilers and linkers. You will normally want to set these environment variables in startup files so they will always be available. **These environment variables must all be set before building any ZAF libraries or applications.**

Typically, ZAF is installed to a directory of its own. This directory then contains an organized set of subdirectories containing the ZAF 5 files. By default, this “ZAF root” directory is called “ZAF”. In the example code that follows, “ZAF” is assumed to be the root ZAF directory. Replace this name if you installed to a different directory.

### PATH

The “PATH” environment variable lists the directories where the operating system looks for external programs requested from the command line. PATH must be modified to include the “BIN” directory where Zinc Designer, `zmake`, and other ZAF utilities are stored. For example:

```
set PATH=%path%;C:\ZAF\BIN
```

### ZINC\_COMPILER

The “ZINC\_COMPILER” environment variables tells `zmake` which vendor’s compiler, linker, and librarian to use. Valid choices include BORLAND, MICROSOFT, or WATCOM. For example:

```
set ZINC_COMPILER=BORLAND
```

### ZAF\_PATH

“ZAF\_PATH” defines where ZAF’s BIN directory is located. This is needed by Zinc Designer to find data files it depends on.

```
set ZAF_PATH=C:\ZAF\BIN
```

### ZAF\_ROOT

“ZAF\_ROOT” specifies the location of ZAF’s root directory. This variable is used by the `zmake` utility to find header and source files when building a ZAF library or application.

```
set ZAF_ROOT=C:\ZAF
```

**INCLUDE**                    “INCLUDE” is an environment variable commonly used by compilers other than Borland. It is used to locate header files. Be sure to include the compiler's include directories as well. Although Borland does not use environment variables, the zmake utility uses them, so INCLUDE should be set for all compilers including Borland.

```
set INCLUDE=C:\BC5\INCLUDE;C:\ZAF\INCLUDE
```

If you will be using the optional, supplied ChartFolio libraries (required to use the ZafChart object) you should also add

```
;C:\ZAF\CF_ZAF\INCLUDE
```

**LIB**                        The “LIB” variable is also common for compilers other than Borland. It is used to locate library files. Be sure to include the compiler's library directories as well. Although Borland does not use environment variables, zmake uses them, so LIB should be set for all compilers including Borland.

```
set LIB=C:\BC5\LIB;C:\ZAF\LIB\BORLAND
```

**CF\_ZAF**                    “CF\_ZAF” specifies the location of the root directory of ChartFolio for ZAF. This variable is used by the zmake utility to find header and source files when building a ZAF library or application that uses ChartFolio for ZAF.

```
set ZAF_ROOT=C:\ZAF\CF_ZAF
```

**PHARLAP**                    “PHARLAP” specifies the location of the root directory of Phar Lap DOS Extender. This variable is used by the zmake utility to find Phar Lap runtime files when building a ZAF DOS application that uses Phar Lap.

```
set PHARLAP=C:\RUN286
```

## **Unix Compilers**

Configuring ZAF for Unix environments is handled automatically by the “mconfig” script. If you installed ZAF using the graphical installation program, your environment has already been configured.

Unlike PC platforms, ZAF for Unix platforms uses native make files unique to each compiler. To reduce maintenance issues, Zinc provides generic make files called “posix.mak”. mconfig translates these posix.mak files to “Makefile”s for each compiler. You may run mconfig at any time to reconfigure make files for a different compiler or build option.

Manually setting environment variables is not generally necessary on Unix, but you may wish to set ZAF\_PATH as described below.

**ZAF\_PATH**                    “ZAF\_PATH” should be defined to allow Zinc Designer to be run from locations other than “zaf/bin”. Its definition is the same on both PC and Unix platforms.

CF\_ZAF

“CF\_ZAF” specifies the location of the root directory of ChartFolio for ZAF. Its definition is the same on both PC and Unix platforms.

# Building Libraries

Zinc Application Framework Version 5 supports many different operating systems, compilers, library types, etc. In fact, the number of combinations is so large that Zinc cannot realistically build all possible combinations and ship them in a single release.

For example, on Microsoft Windows alone Zinc supports three versions of the operating system (Windows NT, 95, and 3.x), three build options (16 bit static libraries, 32 bit static libraries, 32 bit DLLs), three compilers (Microsoft, Borland, and Watcom), three character sets (local code page, ISO-8859-1, and Unicode), and various other build options including debug or non-debug libraries. Clearly, any attempt to build a full set of libraries would rapidly exceed reasonable time and storage resources.

For this reason, and to ensure that users are comfortable building ZAF libraries, Zinc requires developers to build their own development libraries. The following instructions outline this process. Note: Building ZAF 5 libraries may require anywhere from 10 minutes to over one hour depending on the hardware and compiler used.

## PC Compilers

After environment variables have been set (see the previous section, “Configuring your Development Environment”), ZAF 5 libraries may be built. 16-bit Microsoft Windows libraries may be compiled with Borland or Watcom compilers, and 32-bit Microsoft Windows libraries may be compiled with Borland, Watcom, and Microsoft compilers. 16-bit MS-DOS libraries may be compiled with the Borland compiler using the Phar Lap 16-bit extender, and 32-bit MS-DOS libraries may be compiled with the Watcom compiler using Watcom’s 32-bit extender. Other compilers such as IBM may work as well but have not been sufficiently tested to be certified by Zinc.

At the command line from the ZAF\SOURCE directory enter one of the following:

```
zmake win16 (builds 16-bit Windows static libraries)
zmake win32 (builds 32-bit Windows static libraries)
zmake win32dll (builds 32-bit Windows DLL libraries)
zmake dos16 (builds MS-DOS libraries with 16-bit Phar Lap)
zmake dos32 (builds MS-DOS libraries with 32-bit extender)
```

These commands compile and build the libraries and place them in the appropriate location for the compiler specified by the environment variable ZINC\_COMPILER. For example, if using Borland tools, the completed libraries will be placed in \ZAF\LIB\BORLAND. After compilation the following libraries will be created, depending on which of the commands was used:

```
zafw16.lib (16-bit Windows)
```



zafw16p.lib (16-bit persistence library for Windows)

zafw32.lib (32-bit Windows)

zafw32p.lib (32-bit persistence library for Windows)

zafw32.dll (32-bit Windows DLL, used by "win32dll" executables)

zafw32i.lib (32-bit import library for Windows DLL)

zafw32d.lib (32-bit library which contains WinMain())

zafd16.lib (MS-DOS with Phar Lap 16-bit extender)

zafd16p.lib (MS-DOS with Watcom 32-bit extender)

Be sure to test your library by running the test application program (.EXE file named according to the build option used) built along with the libraries. This program is found in the current (SOURCE) directory.

In addition to the ZAF 5 library code, Zinc supplies source code to a portable third-party charting library. This library must be built if your application will make use of the ZafChart class. See [Third-Party Libraries](#) for more information.

## Unix Compilers

After configuring your environment (see the previous section, “Configuring your Development Environment”) you may build ZAF 5 libraries. From the Zinc root directory (usually “ZAF”), simply type “make” at the command line. The XPM library (required for support of the ZafImage object on Motif) will be created first, followed by the Zinc libraries. See [Third-Party Libraries](#) for more information on XPM.

After compilation the following libraries will be created and placed in the zaf/lib directory:

libXpm.a (XPM library)

libZafMtf.a (Archive library for Motif)

libZafMtfP.a (Persistence archive library for Motif)

Be sure to test your library by running the “mtest” program built along with the libraries. This program is found in the current (SOURCE) directory.

In addition to the ZAF 5 library code, Zinc supplies source code to a portable third-party charting library. This library must be built if your application will make use of the ZafChart class. See [Third-Party Libraries](#) for more information.

## Third-Party Libraries

ZAF provides some third-party libraries that may be compiled and used to provide additional functionality. Other third-party libraries are available that do

not ship with ZAF. Contact Zinc for more information if you are interested in using or providing a third-party library for ZAF.

**DPC ChartFolio**

DPC Technology provides a library that can be used for creating simple charts. This library is not compiled as part of the ZAF libraries and must be compiled separately. This library is required to support the ZafChart object.

**ChartFolio for PC**

To compile the ChartFolio library for PC platforms, invoke ZMake from the ZAF\CF\_ZAF\SRC directory. Build options are identical to those used for the ZAF 5 libraries: win16, win32, win32dll, dos16, and dos32.

Following the build process, one of the following libraries (depending on the build option used) will be placed in the same directory as your ZAF 5 libraries.

cfzw16.lib (16-bit Windows)  
cfzw32.lib (32-bit Windows)  
cfzw32.dll and cfzw32i.lib (32-bit DLL Windows)  
cfzd16.lib (MS-DOS with Phar Lap 16-bit extender)  
cfzd32.lib (MS-DOS with Watcom 32-bit extender)

**ChartFolio for Unix**

To compile the ChartFolio library for Unix platforms, invoke “make” from the zaf/cf\_zaf/src directory.

Following the build process, libCfChart.a will be placed in the same directory as your ZAF 5 libraries.

**XPM Library  
(Motif only)**

The source for this library is third-party freeware that Zinc utilizes to provide rich support for the ZafImage class. It is not bundled into the ZAF files, but is shipped as a separate tar file. This tar file, xpm.tar.Z, must be downloaded with the rest of the Motif source files. No explicit build instructions are required since the XPM library is built by the same make file as the ZAF libraries (when invoked from the zaf root directory).

The XPM library is provided on an as-is basis, and its components should not be modified. The “posix.mak” file included to build the XPM library is used by the installation script to create “Makefile,” but the build options are not modified.

# Building Example Programs

After successfully building the ZAF 5 libraries, it is recommended that you build the ZAF example programs prior to moving on to the “Getting Started” manual where you will actually learn to program using Zinc Application Framework.

Supplied make files allow individual example programs to be built, or related sets of examples (one directory), or all examples at once. Select the build option that is most suitable for you, depending on your strategy for learning ZAF.

To build all examples at once for the PC, use the `zmakeall` batch file with the appropriate platform option. At the command line from the `ZAF\EXAMPLE` directory enter one of the following:

```
zmakeall win16 (builds 16-bit Windows examples)
zmakeall win32 (builds 32-bit Windows examples)
zmakeall win32dll (builds 32-bit Windows examples using the DLL)
zmakeall dos16 (builds MS-DOS examples with 16-bit Phar Lap)
zmakeall dos32 (builds MS-DOS examples with 32-bit extender)
```

To build all examples at once for Unix, type “make” in the `zaf/example` directory.

To build a related set of example programs (one directory), go to the desired example subdirectory and invoke `ZMake` (for the PC) or `make` (for Unix) as you built the libraries. For example, to build the Hello World examples for 32-bit Microsoft Windows, go to the `zaf/example/hello` directory and type:

```
zmake win32
```

To build a single example program, go to the directory that contains its source code and invoke `ZMake` (for the PC) or `make` (for Unix) and include the program name on the command line. For example, to build the Hello World 1 example for Motif, go to the `zaf/example/hello` directory and type:

```
make mhello1
```

*To build individual example programs you may need to examine the contents of the make file in each directory for a list of valid program names (targets.)*

# Learning Zinc Application Framework

Congratulations! You've installed Zinc Application Framework version 5—and along the way you've learned more than you might think. You're now ready to begin studying ZAF application development techniques and working on your own applications.

Zinc provides many tools to help you learn. The most important are excellent documentation and example programs. Both of these ZAF components are being continually expanded to make ZAF as easy to learn and use as possible.

If you have never used electronic documentation, or if you have had a negative experience in the past, you'll be pleasantly surprised by the ZAF versions. Zinc has taken electronic docs to a whole new level. They're easy to use and soon become an invaluable resource. Spend a few minutes familiarizing yourself with the documentation set, and especially the contents of the "Programmer's Reference" manual.

To quickly become productive using Zinc Application Framework we recommend that you step through the following procedure:

- Read the "Getting Started" manual and follow all examples and tutorials. This manual is written for developers at all levels. It begins very slowly by stepping you through sample applications. Then, as the manual progresses it moves more quickly to allow you to think and learn.
- Compile and study the sample programs supplied with ZAF 5. Located in the "zaf/example" directory, these programs demonstrate many of the most fundamental ZAF programming techniques. Building them and understanding their concepts and programming techniques will prepare you to quickly handle common tasks.
- Read a few important sections of the "Programmer's Reference" manual: the "ZafWindowObject" chapter, and the "Event Definitions" and "Property Matrices" appendices.
- Print the "Installation Guide" and "Getting Started" manuals for easier reading, or purchase a set of hard copy documentation from Zinc. Electronic documents are excellent for reference but are more difficult to use while learning.

Enjoy Zinc Application Framework version 5! We look forward to hearing from you as you join the growing crowd of educated developers who rely on ZAF.

# Obtaining Technical Support

Free technical support is provided for the installation of Zinc Application Framework. Additional, ongoing technical support is provided to those customers who have purchased Zinc's Customer Assurance Plan (CAP), or on a per-call fee basis.

The following support contact information lists public support access points. CAP members receive separate, private contacts for priority access.

- Public, user community self-support is available via an automated mailing list "zaf5-list@zinc.com". For instructions on subscribing to this and other Zinc lists, send email to "majordomo@zinc.com" and include "help" in the body of the mail, or visit the support section of our web site.
- Direct email support is available via "support@zinc.com". This address is monitored by worldwide support personnel, but is handled only on an as-available resource basis. CAP members receive priority support through another email address.
- CompuServe users may access Zinc's forum using "GO ZINC." This forum is occasionally monitored by Zinc but is intended for user community self-support.
- Telephone and fax technical support are available world wide from one of Zinc's offices or from a Zinc Partner reseller. Zinc's offices are listed below. Visit the Zinc web site at [www.zinc.com](http://www.zinc.com) for a current list of Zinc Partners.

## Zinc Technical Support (North America)

Voice: 1 801-785-8998

FAX: 1 801-785-8996

BBS: 1 801-785-8997

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