IBM XL C/C++ Enterprise Edition V8.0 for AIX®

Installation Guide

Version 8.0

GC09-7999-00

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Note!
Before using this information and the product it supports, be sure to read the information in "Notices" on page 23.

First Edition (October 2005)

This edition applies to Version 8.0 Release 0 Modification 0 of IBM XL C/C++ Enterprise Edition V8.0 for AIX (product number 5724-M12) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this document

This document describes detailed procedures for installing, configuring, and uninstalling IBM® XL C/C++ Enterprise Edition V8.0 for AIX®. It guides you through multiple ways to perform each task, where applicable, and gives you the reference information required to perform atypical installations. It also shows you how to test the installation, launch remotely-accessible HTML documentation, and enable and view different types of documentation. Please read it carefully before installing. Please also read the Readme file on the CD-ROM (`/README` for English, `/README.ja_JP` for Japanese, and `/README.zh_CN` for Chinese), which contains the most current information about the compiler.

Who should read this document

This document is a guide for users who want to install IBM XL C/C++ Enterprise Edition V8.0 for AIX (and related documentation), or perform administrative tasks such as configuration and uninstallation. Most tasks require that you have root user access. This guide assumes that you have a basic working knowledge of the AIX operating system.

How to use this document

To install the compiler or see the complete fileset listings, see Chapter 1, "Installation," on page 1.

To view compiler and fileset version information (which you may need when seeking support), see Chapter 2, "Administration," on page 15.

To configure the compiler environment and enable the manual pages, see Chapter 3, "Configuring the compiler environment," on page 17.

To uninstall the compiler or its components, see Chapter 4, "Uninstallation," on page 19.

To view the documentation, see Chapter 5, "Viewing the documentation," on page 21.

How this document is organized

Chapter 1 explains the requirements before installing and shows you how to preview the installation, and then describes the procedure to install the compiler, libraries, debugger, and documentation.

Chapter 2 shows you how to view version information on the compiler or its components.

Chapter 3 shows you how to set up the compiler invocation commands to be easily invoked, and how to enable the manual pages.

Chapter 4 shows you how to uninstall the product and its individual components using different methods.

Chapter 5 describes the procedure to view documentation of different types, and to make the HTML-based documentation accessible to remote users on a network.

Conventions and terminology used in this document

Typographical conventions

The following table explains the typographical conventions used in this document.

Table 1. Typographical conventions

Typeface	Indicates	Example
bold	Commands and GUI labels	It will ask you to specify the **INPUT device/directory of the software**
italics	Variables whose actual values are to be supplied by the user. Italics are also used to emphasize terms.	Enter the following on the command line: **man** *command* Where *command* is a command, for example **xlC**
`monospace`	Filenames, file paths, Web addresses, and input values.	Please also read the Readme file on the CD-ROM (`/README` for English)

Related information

IBM XL C/C++ publications

XL C/C++ provides product documentation in the following formats:

- Readme files

  Readme files contain late-breaking information, including changes and corrections to the product documentation. Readme files are located by default in the `/usr/vacpp/` directory and in the root directory of the installation CD.

- Installable manual pages

  Manual pages are provided for the compiler invocations and all command-line utilities provided with the product. Instructions for installing and accessing the man pages are provided in the XL C/C++ Installation Guide.

- Information center

  The information center of searchable HTML files can be launched on a network and accessed remotely or locally. Instructions for installing and accessing the information center are provided in the XL C/C++ Installation Guide. The information center is also viewable on the Web at:

  `http://publib.boulder.ibm.com/infocenter/comphelp/index.jsp`

- PDF documents

  PDF documents are located by default in the `/usr/vacpp/doc/`*`language`*`/pdf/` directory, and are also available on the Web at:

  `www.ibm.com/software/awdtools/xlcpp/library`

  In addition to this document, the following files comprise the set of XL C/C++ product manuals:

Table 2. XL C/C++ PDF files

Document title	PDF file name	Description
Getting Started with IBM XL C/C++ Enterprise Edition V8.0 for AIX, C09-7997-00	getstart.pdf	Contains an introduction to the XL C/C++ product, with information on setting up and configuring your environment, compiling and linking programs, and troubleshooting compilation errors.
IBM XL C/C++ Enterprise Edition V8.0 for AIX Compiler Reference, SC09-7995-00	compiler.pdf	Contains information about the various compiler options, pragmas, macros, environment variables, and built-in functions, including those used for parallel processing.
IBM XL C/C++ Enterprise Edition V8.0 for AIX Language Reference, SC09-7998-00	language.pdf	Contains information about the C and C++ programming languages, as supported by IBM, including language extensions for portability and conformance to non-proprietary standards.
IBM XL C/C++ Enterprise Edition V8.0 for AIX Programming Guide, SC09-7996-00	proguide.pdf	Contains information on advanced programming topics, such as application porting, interlanguage calls with Fortran code, library development, application optimization and parallelization, and the XL C/C++ high-performance libraries.
IBM C/C++ Standard Library Reference, SC09-8000-00	standlib.pdf	Contains reference information about the standard C++ runtime libraries and headers.
IBM C/C++ Legacy Class Libraries Reference, SC09-7652-00	legacy.pdf	Contains reference information about the USL I/O Stream Library and the Complex Mathematics Library.

These PDF files are viewable and printable from Adobe Reader. If you do not have the Adobe Reader installed, you can download it from `www.adobe.com`.

Additional documentation

More documentation related to XL C/C++, including redbooks, whitepapers, tutorials, and other articles, is available on the Web at:

`www.ibm.com/software/awdtools/xlcpp/library`

Related publications

You might want to consult the following publication, which is also referenced throughout this document:

- *AIX Network Installation Management Guide and Reference*,

Technical support

Additional technical support is available from the XL C/C++ Support page. This page provides a portal with search capabilities to a large selection of technical support FAQs and other support documents. You can find the XL C/C++ Support page on the Web at:

`www.ibm.com/software/awdtools/xlcpp/support`

If you cannot find what you need, you can e-mail:

`compinfo@ca.ibm.com`

For the latest information about XL C/C++, visit the product information site at:

www.ibm.com/software/awdtools/xlcpp

How to send your comments

Your feedback is important in helping to provide accurate and high-quality information. If you have any comments about this document or any other XL C/C++ documentation, send your comments by e-mail to:

compinfo@ca.ibm.com

Be sure to include the name of the document, the part number of the document, the version of XL C/C++, and, if applicable, the specific location of the text you are commenting on (for example, a page number or table number).

Chapter 1. Installation

This chapter contains all the information you need to perform installations, both to the default and non-default locations. All of the filesets are listed, as well as the system requirements to run IBM XL C/C++ Enterprise Edition V8.0 for AIX. This chapter also explains how to preview an installation to ensure that all requirements are met. Simple testing procedures are also provided to ensure the installation was successful.

Distribution CD layout

The files are organized in the following way on the CD-ROM:

```
README
README.ja_JP
README.zh_CN
LicAgree.pdf
LicInfo.pdf
doc/LANG/pdf/...
IBMdebugger/windows/...
runtime/...
usr/sys/inst.images/...
```

where *LANG* can be:

- **en_US**
- **ja_JP**
- **zh_CN**

The `doc` directory contains documentation which can be accessed prior to installation.

The `IBMdebugger/windows/` directory contains the IBM Debugger for AIX, Version 5.0.0 (for Windows 2000®/Windows XP®).

The `runtime` directory contains redistributable runtime filesets.

The `inst.images` directory contains the product filesets.

Filesets and packaging

If you do not want to install all available filesets, you may choose which filesets to install. In addition, you may specify that any fileset which is a prerequisite to a fileset you selected be installed automatically.

When fileset names differ only by the locale code, you can choose to install only the filesets relevant to your desired language and location. The LANG environment variable determines which message catalogs are used. The en_US (English) message catalogs are installed by default. If LANG is not defined or is assigned an unsupported locale, en_US message catalogs are used.

LANG can be set to one of the following locale codes:

- en_US.ISO8859-1
- EN_US.UTF-8

- Ja_JP.IBM-943
- ja_JP.IBM-eucJP
- JA_JP.UTF-8
- Zh_CN.GBK
- zh_CN.IBM-eucCN
- ZH_CN.UTF-8

XL C compiler filesets

The following filesets are included in the XL C compiler.

Table 3. XL C compiler filesets

Fileset name	Fileset description
vac.C	IBM XL C compiler
vac.include	IBM XL C compiler include files
vac.man.*LANG* **Note:** *LANG* is one of: **en_US**, **EN_US**, **ja_JP**, **Ja_JP**, **JA_JP**, **zh_CN**, **Zh_CN**, **ZH_CN**.	IBM XL C compiler manual pages
vac.lib	IBM XL C compiler libraries
vac.aix50.lib	IBM XL C compiler libraries for AIX 5
vac.lic	IBM XL C license files **Note:** For licensed customers only
vac.msg.*LANG*.C **Note:** *LANG* is one of: **en_US**, **EN_US**, **ja_JP**, **Ja_JP**, **JA_JP**, **zh_CN**, **ZH_CN**.	IBM XL C compiler messages

XL C++ compiler filesets

The following filesets are included in the XL C/C++ compiler.

Note: All of the filesets required for the XL C compiler, except `vac.ndi` and `vac.licAgreement`, are also required for the XL C/C++ compiler.

Table 4. XL C/C++ compiler filesets

Fileset name	Fileset description
vacpp.cmp.aix50.lib	IBM XL C/C++ libraries for AIX 5.1, 5.2 and 5.3
vacpp.cmp.aix50.tools	IBM XL C/C++ tools for AIX 5.1, 5.2 and 5.3
vacpp.cmp.core	IBM XL C/C++ compiler
vacpp.cmp.include	IBM XL C/C++ compiler include files
vacpp.cmp.lib	IBM XL C/C++ libraries
vacpp.cmp.rte	IBM XL C/C++ compiler application runtime
vacpp.cmp.tools	IBM XL C/C++ tools
vacpp.lic	IBM XL C/C++ license files
vacpp.licAgreement	IBM XL C++ electronic license agreement files
vacpp.memdbg.aix50.lib	IBM XL C/C++ user heap/memory debug AIX 5.1, 5.2 and 5.3 libraries

Table 4. XL C/C++ compiler filesets (continued)

Fileset name	Fileset description
vacpp.memdbg.aix50.rte	IBM XL C/C++ user heap/memory debug AIX 5.1, 5.2 and 5.3 runtime
vacpp.memdbg.lib	IBM XL C/C++ user heap and memory debugger static library
vacpp.memdbg.rte	IBM XL C/C++ user heap and memory debugger runtime
vacpp.msg.*LANG*.cmp.core **Note:** *LANG* is one of: **en_US**, **EN_US**, **ja_JP**, **Ja_JP**, **JA_JP**, **zh_CN**, **ZH_CN**.	IBM XL C/C++ compiler messages
vacpp.msg.*LANG*.cmp.tools **Note:** *LANG* is one of: **en_US**, **EN_US**, **ja_JP**, **Ja_JP**, **JA_JP**, **zh_CN**, **ZH_CN**.	IBM XL C/C++ tools messages
vacpp.man.*LANG* **Note:** *LANG* is one of: **en_US**, **EN_US**, **ja_JP**, **Ja_JP**, **JA_JP**, **zh_CN**, **ZH_CN**.	IBM XL C/C++ compiler manual pages

C++ runtime filesets

The following filesets are included in the IBM XL C/C++ Enterprise Edition V8.0 for AIX compiler installation package, and must be installed with the compiler.

Table 5. C++ runtime filesets

Fileset name	Fileset description
xlC.adt.include	C Set ++ application development toolkit
xlC.aix50.rte	C Set ++ runtime for AIX 5.1, 5.2 and 5.3
xlC.msg.*LANG*.rte **Note:** *LANG* is one of: **en_US**, **ja_JP**, **Ja_JP**.	C Set ++ runtime messages
xlC.rte	C Set ++ runtime

XL SMP runtime environment filesets

The following filesets are included in the IBM XL C/C++ Enterprise Edition V8.0 for AIX installation package, and must be installed with the compiler.

Table 6. XL SMP runtime filesets

Fileset name	Fileset description
xlsmp.msg.*LANG*.rte **Note:** *LANG* is one of: **en_US**, **EN_US**, **ja_JP**, **Ja_JP**, **JA_JP**, **zh_CN**, **Zh_CN**, **ZH_CN**.	XL SMP runtime messages
xlsmp.rte	XL SMP runtime library
xlsmp.aix50.rte	XL SMP runtime library for AIX 5.1, 5.2 and 5.3

Non-default installation scripts and sample filesets

The following optional filesets are provided to facilitate compiler installation to a non-default location and are not required for any XL C/C++ component.

Table 7. Optional XL C/C++ filesets

Fileset name	Fileset description
vac.ndi	IBM XL C non-default installation script
vacpp.ndi	IBM XL C++ non-default installation script
vacpp.samples.ansicl	IBM XL C++ ANSI class library samples

XL C/C++ compiler online help filesets

The following filesets contain the IBM XL C/C++ Enterprise Edition V8.0 for AIX compiler online help.

Table 8. XL C/C++ compiler online help filesets

Fileset name	Fileset description
vac.html.*LANG*.C **Note:** *LANG* is one of: **en_US**, **ja_JP**, **zh_CN**.	IBM XL C information center
vac.html.common.search	IBM XL C compiler documentation (HTML) search common
vac.pdf.*LANG*.C **Note:** *LANG* is one of: **en_US**, **ja_JP**, **zh_CN**.	IBM XL C documentation (PDF)
vacpp.html.*LANG* **Note:** *LANG* is one of: **en_US**, **ja_JP**, **zh_CN**.	IBM XL C/C++ information center
vacpp.pdf.*LANG* **Note:** *LANG* is one of: **en_US**, **ja_JP**, **zh_CN**.	IBM XL C/C++ documentation (PDF)
vacpp.html.common	IBM XL C/C++ documentation (HTML) common files
vacpp.tnb	IBM XL C/C++ evaluation license file **Note:** For licensed customers only
xlhelp.html.*LANG* **Note:** *LANG* is one of: **en_US**, **ja_JP**, **zh_CN**.	XL Compiler common documentation
xlhelp.com	XL Compiler information center

Runtime debug memory routine filesets

Table 9. Runtime debug memory routine filesets

Fileset name	Fileset description
memdbg.adt	User heap/memory debug toolkit
memdbg.aix50.adt	User heap/memory debug toolkit for AIX 5.1, 5.2 and 5.3
memdbg.msg.*LANG* **Note:** *LANG* is one of: **en_US**, **EN_US**, **ja_JP**, **Ja_JP**, **JA_JP**, **zh_CN**, **ZH_CN**.	User heap/memory debug messages

XL MASS filesets

The following filesets contain the XL MASS libraries.

Table 10. XL MASS filesets

Fileset name	Fileset description
xlmass.adt.include	IBM MASS application development include files
xlmass.lib	IBM MASS libraries
xlmass.aix51.lib	IBM MASS libraries for AIX 5.1, 5.2, and 5.3

IBM Debugger for AIX, Version 5.0.0 filesets

The following filesets contain the IBM Debugger for AIX, Version 5.0.0.

Table 11. IBM Debugger for AIX, Version 5.0.0 filesets

Fileset name	Fileset description
ibmdebugger.engine	IBM Debugger debug engine components
ibmdebugger.client	IBM Debugger debug UI components
ibmdebugger.msg.*LANG* **Note:** *LANG* is one of: **pt_BR**, **zh_CN**, **zh_TW**, **de_DE**, **es_ES**, **fr_FR**, **it_IT**, **ja_JP**,**ko_KR**.	IBM Debugger debug message files
ibmdebugger.help.*LANG* **Note:** *LANG* is one of: **pt_BR**, **zh_CN**, **zh_TW**, **de_DE**, **es_ES**, **fr_FR**, **it_IT**, **ja_JP**,**ko_KR**.	IBM Debugger debug help components

Bundle installation filesets

The following optional filesets are provided to facilitate bundle installation and are not required for any XL C/C++ component.

Table 12. Bundle installation filesets

Fileset name	Fileset description
vac.Bnd	IBM XL C media defined bundles
vacpp.Bnd	IBM XL C/C++ media defined bundles

Installing IBM XL C/C++ Enterprise Edition

You can install XL C/C++ from the CD-ROM or over a network. You can also use the Network Install Manager (NIM) to perform network installs. Refer to the *AIX Network Installation Management Guide and Reference* for information about NIM.

System prerequisites

- **Operating system:** AIX 5L V5.1, AIX 5L V5.2, or AIX 5L for POWER V5.3
- **Required hard disk space:** 350 MB
- **Common Desktop Environment (CDE):** Common Desktop Environment (CDE) is required for applications and tools with an AIX graphical interface
- **Optional software:** web browser and PDF viewer (to view documentation)

Prerequisite tasks or conditions

- You must have root user access to install IBM XL C/C++ Enterprise Edition V8.0 for AIX.
- By default, installing IBM XL C/C++ Enterprise Edition V8.0 for AIX causes any previously installed IBM C/C++ compilers on the system to be overwritten without any warnings. Because this operation also overwrites any configuration file (`/etc/vac.cfg`) that is present, be sure to save a backup copy if you have made any customizations. You can then add your customizations to the new configuration file, but do not simply overwrite the new configuration file with an older version.
- If you want IBM XL C/C++ Enterprise Edition V8.0 for AIX to co-exist with a previous version of an IBM C/C++ compiler, you must install the new compiler in a different location. See "Installing XL C/C++ to a non-default location" on page 10 for instructions. Alternatively, you can uninstall the previous version and install it to a different location.
- After installing IBM XL C/C++ Enterprise Edition V8.0 for AIX, make sure to read the product Readme file in `/usr/vacpp/README` for English, `/usr/vacpp/README.ja_JP` for Japanese and `/usr/vacpp/README.zh_CN` for Chinese. It contains information that the system administrator may need to act on or distribute to others who use the product.

Checking for required filesets:

The following filesets *must* be installed on your system in order to install IBM XL C/C++ Enterprise Edition V8.0 for AIX.

Fileset name	Fileset description
bos.adt.include	Base application development include files **Note:** Different versions of AIX require different levels of this fileset. The minimum level requirements are as follows: AIX 5.1 needs 5.1.0.61, AIX 5.2 needs 5.2.0.41, AIX 5.3 needs 5.3.0.3.
bos.adt.lib	Base application development libraries
bos.adt.libm	Base application development math libraries
bos.rte.libc	Base application runtime library **Note:** Different versions of AIX require different levels of this fileset. The minimum level requirements are as follows: AIX 5.1 needs 5.1.0.62, AIX 5.2 needs 5.2.0.41, AIX 5.3 needs 5.3.0.3.

You can view information about the installed filesets by using the **lslpp** command.

Use the following command to determine if these items have been installed:

```
lslpp -L bos.adt.include bos.adt.lib bos.adt.libm bos.rte.libc
```

Checking for other filesets:

The following optional filesets are prerequisites for some components.

Fileset name	Fileset description
bos.rte.libpthreads	Pthreads library (required for threaded applications)

Use the following command to determine if the fileset has been installed:

```
lslpp -L bos.rte.libpthreads
```

Previewing the installation and license agreements

You can preview the installation process without actually installing the product. The advantage of the installation preview is that you can make sure that all prerequisites, such as disk space, have been met.

Using SMIT

Follow these steps to preview the installation process from the CD-ROM for all filesets from the SMIT (System Management Interface Tool) interface:

1. Run the following on the command line:

   ```
   smit install_latest
   ```

   This command invokes the SMIT, which presents a menu-driven environment for the installation process.
2. It will ask you to specify the **INPUT device/directory of the software**. Click the **List** button to select from a list of suggested devices and directories, or type in the name of the CD-ROM device or the path to where the packages are located, if it is not listed. If you want to install over a network you must have a network server installed, and then specify the directory on the client that corresponds to the installation source on the network server. Click **OK**.
3. At this stage you are prompted with a list of fields with default values as shown in the following table:

Prompt	Default value
INPUT device/directory for software	/dev/cd0
SOFTWARE to install	all_latest
PREVIEW only? (install operation will NOT occur)	no
COMMIT software updates?	yes
SAVE replaces files?	no
AUTOMATICALLY install requisite software?	yes
EXTEND file systems if space needed?	yes
OVERWRITE same or newer versions?	no
VERIFY install and check file sizes?	no
Include corresponding LANGUAGE filesets?	yes
DETAILED output?	no
Process multiple volumes?	yes
ACCEPT new license agreements?	no
Preview New LICENSE agreements?	no

4. Set the **SOFTWARE to install** value to **all_latest**.
5. Set the **PREVIEW only** value to **yes**.
6. Set the **Preview new LICENSE agreements** to **yes**.
7. Click **OK** and then **OK** again.

You can also verify the amount of space needed for the installation before you install the product. Choose the above-mentioned settings and proceed as follows:

- Next to `Verify install and check file sizes`, choose **yes**.

The system makes additional resource checks during installation. You can also choose **yes** next to the following option:

```
EXTEND file systems if space needed.
```

Alternatively, you can preview the license agreement with the parameter **show_license_agree**. To do so, follow these steps:

1. Type `SMIT show_license_agree` on the command line. You have two options as follows:
   - `Show installed license agreements`
   - `Show license agreements on installation media`
2. Choose the first option if you want to preview the license agreement of software that is already installed on your machine and the second option if you want to preview the license agreement of software before you actually install it.

   If you choose `Show installed license agreements`, you are prompted as follows:
   - `SOFTWARE name` (with a default value of `all`)
   - `SHOW license agreement text` (with a default value of `yes`)

   Click on the **List** button to choose the filesets for which you want to view the license agreement, or just type the name of the fileset and click **OK**.

   If you choose `Show license agreements on installation media`, you are prompted to enter `INPUT device/directory for software`. Click the **List** button to select from a list of suggested devices and directories, or type in the name of the CD-ROM device or the path to where the packages are located, if it is not listed, and click **OK**.

Using installp

Run the following command to preview the command line installation process from the CD-ROM using installp and writing the output to a log file:

```
/usr/sbin/installp -paXYgd location_of_install_images
                                    -e location_of_log_file fileset_names
```

where:

- *location_of_install_images* is the device or directory of the compiler filesets (for example, `/cdrom/usr/sys/inst.images`)
- *location_of_log_file* is a log file (for example, `/tmp/install.log`) .
- *fileset_names* is a list of names of the filesets in *location_of_install_images* that you want to install (the keyword "all" can be used to indicate that all filesets should be previewed).

You can also preview the license agreements using installp command by executing:

```
/usr/sbin/installp -aEd input-device all
```

where the *input-device* is the device or directory of the compiler filesets.

Product migration installation

It is recommended that you uninstall any previous versions of the compiler prior to installation. However, migration installation from previous compiler versions is supported. The installation procedure is the same because during installation installp determines whether previous versions of the fileset exist, and if so will take the appropriate steps to migrate the fileset.

Note: If you have performed any customization to the configuration file for the previous version, `vac.cfg`, you must do the same for the new configuration file.

Installing XL C/C++ to the default location

With root access, you can use SMIT (System Management Interface Tool) or the installp command to install the compiler.

Using SMIT

To install the compiler using the SMIT interface, follow these steps:

1. Enter the following command on the AIX command line:

   ```
   smit install_latest
   ```

   This command invokes the SMIT, which presents a menu-driven environment for the installation process. It will ask you to specify the `INPUT device/directory of the software`.
2. Click the **List** button to select from a list of suggested devices and directories, or type in the name of the CD-ROM device or the path to where the packages are located. If you want to install over a network you must have a network server installed, and then specify the directory on the client that corresponds to the installation source on the network server.
3. Click **OK**.

   At this stage you are prompted with a list of questions with a default answer as you see in the following table.

Prompt	Default value
INPUT device/directory for software	/dev/cd0
SOFTWARE to install	_all_latest
PREVIEW only? (install operation will NOT occur)	no
COMMIT software updates?	yes
SAVE replaces files?	no
AUTOMATICALLY install requisite software?	yes
EXTEND file systems if space needed?	yes
OVERWRITE same or newer versions?	no
VERIFY install and check file sizes?	no
Include corresponding LANGUAGE filesets?	yes
DETAILED output?	no
Process multiple volumes?	yes
ACCEPT new license agreements?	no
Preview new LICENSE agreements?	no

4. Click the **List** button next to `SOFTWARE to Install` to view the installable images on the device, then select the images to install. Install the runtime libraries first, then install the other images in any order. You can choose **_all_latest** if you want to install everything.
5. If you have read the license agreement and agree to its terms, next to `Accept new license agreements`, choose **yes**.
6. Click **OK** and then **OK** again.
7. To continue, click **OK**.

Notes:

a. The runtime libraries and compiler images are always required.

b. You do not need all of the compile-time and runtime message catalogs, only those for the national languages that you need for compile-time and runtime messages.

c. Messages are displayed as each part is successfully installed.

Using installp

To install the compiler by using the installp command line interface and write the output to a log file, follow these steps:

Enter the following command on the command line:

```
/usr/sbin/installp -aXYgd install_images_location
                   -e logfile_location fileset_names
```

where:

- *install_images_location* is the device or directory of the compiler filesets (for example, `/cdrom/usr/sys/inst.images`).
- *logfile_location* is a log file (for example, `/tmp/install.log`).
- *fileset_names* is a list of names of the filesets in *install_images_location* that you want to install (the keyword "all" can be used to indicate that all filesets should be attempted during install).

Installing XL C/C++ to a non-default location

You can install XL C/C++ to a non-default directory using the `vacppndi` Perl script provided with the product. This allows you to run multiple versions of XL C/C++ on a single system. The script is packaged in the **vacpp.ndi** fileset. To avoid unexpected behavior during installation, do not modify this script.

You may choose to install just the compiler filesets, or the compiler, the sample files, and the PDF documentation files. You cannot install IBM Debugger for AIX, Version 5.0.0 or the HTML online help using the **vacppndi** script.

Limitations of non-default installation

- The recommended method for installing IBM XL C/C++ Enterprise Edition V8.0 for AIX is installing to the default location. You should only use the **vacppndi** script to install XL C/C++ if you are an expert AIX user familiar with the compiler and the standard installation process.
- The **vacppndi** script does not check whether prerequisite packages are installed.
- You cannot use this script to install the product filesets individually.
- IBM Debugger for AIX, Version 5.0.0 filesets will not be installed. You must install these filesets separately using installp or the SMIT.
- You will not be able to use AIX tools (such as **lslpp**) to uninstall, or to determine which version or release levels of the compiler components are installed.
- Service refreshes of the compiler assume a default installation path. For a non-default compiler installation, the **vacppndi** script must be used to apply a service package.
- To run `vacppndi`, you must have the Perl version 5.5.3 runtime environment, `perl.rte`, installed on your computer. This fileset is shipped with the AIX base operating system.

Procedure

Follow these steps to install IBM XL C/C++ Enterprise Edition V8.0 for AIX to an alternate location:

1. Install the **vacpp.ndi** fileset using the following command:

   ```
   /usr/sbin/installp -aYgd location_of_install_images
                      -e location_of_log_file vacpp.ndi
   ```

   where:

   - *location_of_install_images* is the device or directory of the compiler filesets (for example, `/cdrom/usr/sys/inst.images`).
   - *location_of_log_file* can be a log file (for example, `/tmp/install.log`).

2. Install IBM XL C/C++ Enterprise Edition V8.0 for AIX by entering the following command:

   ```
   /usr/vacpp/bin/vacppndi -d source_path [-e logfile] -b [target_dir]
   ```

   where:

   -d *source_path*
   Specifies the directory where the filesets are located. This path may also be a mounted CD-ROM drive.

   -e *logfile*
   Specifies the name and location of the installation log file. By default, the installation log file **vacppndi.log** will be stored in your working directory.

   -b *target_dir*
   Specifies the location where the filesets should be copied and expanded. By default, the files will be copied to the **vacppndi** directory in your working directory. If the directory exists already, you will receive an error message and the installation will stop.

Installing PTF updates to a non-default installation

To install a PTF (program temporary fix) for the XL C/C++ compiler installed to a non-default directory, follow these steps:

1. Create a text file listing the PTF files you want to install. This text file should contain the name of a single PTF file on each line.
2. Enter the following on the command line:

   ```
   /usr/vacpp/bin/vacppndi -d source_path [-e logfile]
                           -u ptf_names_file [-b target_dir]
   ```

   where:

   -d *source_path*
   Specifies the directory where the PTF files are located.

   -e *logfile*
   Specifies the name and location of the installation log file. By default, the installation log file **vacppndi.log** will be stored in your working directory.

   -u *ptf_names_file*
   Specifies the text file containing the names of PTF files you want to install.

   -b *target_dir*
   Specifies the location where the fixes should be installed. By default, the fixes will be installed to the **vacppndi** directory within your current working directory.

Operating system migration

If you are using a previous version of the AIX operating system and you want to migrate to the new version, you need to manually update the configuration file symbolic link to point to the matching operating-system-specific configuration file after operating system migration. You must have root user access to link the file. You can update the configuration file by entering the following on the command line:

```
ln -fs /etc/vac.cfg.OS_level /etc/vac.cfg
```

where *OS_level* is the new operating system level, represented by one of the following:

- 51
- 52
- 53

If you have customized the configuration file for the previous version and you want the changes to take effect in the new version, you should perform the same customization for the new version.

Testing the installation

To test the product install and the critical search paths, try building the following simple C and C++ programs.

1. Create the following C program and name the source file `hello.c`:

```
#include <stdio.h>
int main(void)
{
   printf("Hello World!\n");
   return 0;
}
```

2. Use the **xlc** command to compile the test program. For example:

```
/usr/vac/bin/xlc hello.c -o hello
```

3. Run the program:

```
./hello
```

   The expected result is that ″Hello World!″ is displayed on the screen.

4. Check the exit code of the program:

```
echo $?
```

   The result should be zero.

5. Create the following C++ program and name the source file `hello.c++`:

```
#include <iostream>
int main()
{
   std::cout << "Hello World!" << std::endl;
   return 0;
}
```

6. Use the **xlc++** command to compile the test program. For example:

```
/usr/vacpp/bin/xlc++ hello.c++ -o hello
```

7. Run the program:

```
./hello
```

   The expected result is that ″Hello World!″ is displayed on the screen.

8. Check the exit code of the program:

```
echo $?
```

The result should be zero.

Chapter 2. Administration

Checking compiler and fileset information

You can check the versions of the compiler and individual filesets installed by using the following methods.

Using lslpp

You can view information on the installed filesets by using the lslpp command:

```
lslpp option_string
```

where *option_string* can be:

-L *fileset*
Displays the version and state of the fileset specified

-f *fileset*
Displays the files and symbolic links associated with the fileset specified

-w *filename*
Indicates which fileset the specified file (*filename*) belongs to

Note: **lslpp** does not detect filesets that were not installed using the SMIT or installp methods.

Using -qversion

To get more details on the version, release, and PTF levels of the compiler, you can use the **-qversion** compiler option. For more information, refer to -qversion in the *XL C/C++ Compiler Reference*.

Viewing the .vrmf_history file

If you installed XL C/C++ to a non-default location, you can view the version information for each fileset installed by viewing the `.vrmf_history` text file which is installed in the compiler's main directory.

Chapter 3. Configuring the compiler environment

Setting up calls to the compiler invocation commands

The XL C/C++ drivers are not automatically installed in /usr/bin/. To invoke the compiler without having to specify the full path, do *one* of the following:

1. Create symbolic links for the specific drivers from /usr/bin/ to /usr/vac/bin/ and /usr/vacpp/bin/.
2. Add /usr/vac/bin/ and /usr/vacpp/bin/ to your PATH environment variable.

If you use a method other than the installp command or the SMIT (System Management Interface Tool) utility to install XL C/C++ (such as the non-default install script), the location of the drivers will be different from the default locations mentioned above.

Enabling the manual pages

Manual pages are provided for the compiler invocation commands and other compiler utilities.

Before you can view the manual pages, you must add the manual page directory to the MANPATH environment variable by entering the following on the command line:

```
export MANPATH=/usr/vacpp/man/LANG:$MANPATH
```

Where *LANG* is one of the following supported languages:

- en_US
- EN_US
- Ja_JP
- ja_JP
- JA_JP
- Zh_CN
- zh_CN
- ZH_CN

For example, to set the language to English, enter the following on the command line:

```
export MANPATH=/usr/vacpp/man/en_US:$MANPATH
```

Chapter 4. Uninstallation

Uninstalling XL C/C++ Enterprise Edition

From the default location

Note: You must have root user access to uninstall this product.

As with installation, you have the option to use either the SMIT or installp to remove the compiler filesets. If you attempt to remove a fileset that is required by another installed fileset, the selected fileset will not be removed unless its dependents are also being removed.

Notes:

1. Some filesets may not be uninstalled if they are required by other installed products. See "Filesets and packaging" on page 1 for details about filesets included with IBM XL C/C++ Enterprise Edition V8.0 for AIX.
2. As uninstalling dependent packages automatically may introduce problems, it is recommended that you preview uninstallation to ensure that all dependent filesets are no longer required.

Using SMIT

The following steps illustrate how to uninstall IBM XL C/C++ Enterprise Edition V8.0 for AIX using the SMIT interface:

- Enter the following on the command line:

  ```
  smit remove
  ```

- A window will appear.

  In the **SOFTWARE name** field, enter the fileset names (wildcards accepted) separated by a space. If you have XL Fortran installed in its default location, you must not remove any filesets which are shared between the compilers. In this case, enter the following in the field:

  ```
  vac.* vacpp.* ibmdebugger.*
  ```

  Otherwise, enter the following in the field:

  ```
  vac.* vacpp.* memdbg.* ibmdebugger.* xlhelp.* xlmass.* xlsmp.*
  ```

  In the **REMOVE dependent software?** field, select **yes**.

  To preview the uninstallation, set the **PREVIEW only?** value to **yes**.

Using installp

To uninstall IBM XL C/C++ Enterprise Edition V8.0 for AIX using the installp interface, enter the following on the command line:

```
/usr/sbin/installp -ugw filesets
```

where *filesets* is the list of filesets (wildcards accepted) to uninstall.

If you have XL Fortran installed in its default location, you must not remove any filesets which are shared between the compilers. In this case, *filesets* should be:

```
vac.* vacpp.* ibmdebugger.*
```

Otherwise, *filesets* should be:

```
vac.* vacpp.* memdbg.* ibmdebugger.* xlhelp.* xlmass.* xlsmp.*
```

From a non-default location

To uninstall the XL C/C++ compiler installed to a non-default location, simply delete the compiler directory.

To determine which version of each fileset is installed, refer to "Checking compiler and fileset information" on page 15.

To delete the compiler directory, enter the following on the command line:

rm -rf *target_directory*

Uninstalling the E-license agreement

Uninstalling the license fileset will not remove the license agreement text file on the system. This was intended so you can re-install the product without re-accepting the license. To remove the license agreement text file, run the following commands (this requires root access):

```
ODMDIR=/usr/lib/objrepos; odmdelete -o lag -q "fileset=vacpp.licAgreement"
rm -rf /usr/swlag/vacpp/80
```

Uninstalling versions of the MASS components downloaded from the Web

If you previously installed the MASS libraries on the system on which you are installing the IBM XL C/C++ Enterprise Edition V8.0 for AIX, it is recommended that you uninstall the libraries by removing the directory in which they were installed.

To remove the MASS directory, type:

rm -rf *target_directory*

where *target_directory* is the location of the MASS libraries (`/usr/lpp/mass` by default). If you created symbolic links in the `/usr/lib` directory to the libraries in the MASS directory, you should delete them as well. The compiler installation automatically handles the creation of the necessary symbolic links.

Chapter 5. Viewing the documentation

Viewing the HTML documentation

The IBM XL C/C++ Enterprise Edition V8.0 for AIX uses a fully searchable HTML-based information center.

Note: You must have root access to launch and shut down the Eclipse server (information center).

To access the help system, follow these steps:

1. Launch the Eclipse server by executing the following command:

   ```
   /usr/xlhelp/bin/xlhelp
   ```

   (This may take a few minutes to load completely)
2. View the information center either locally or remotely:
   - To view the information center on the local machine, execute the following command to launch the Mozilla browser with the URL already provided:

     ```
     /usr/vacpp/bin/xlc++help
     ```
   - If the information center was launched and is running on a different machine, you can access it remotely by opening the following URL in your web browser:

     `http://`*`machine_name`*`:5312/help/index.jsp`

     where *machine_name* is the name of the computer on which the Eclipse server was launched.
3. To shut down the Eclipse server, execute the following command:

   ```
   /usr/xlhelp/bin/xlhelp_end
   ```

Note that the IBM Debugger for AIX, Version 5.0.0 documentation consists of HTML online help and additional HTML documentation accessible from the graphical user interface.

Viewing and printing the PDF documentation

Before you install IBM XL C/C++ Enterprise Edition V8.0 for AIX, you can find the PDF documentation in the following locations on the CD:

Table 13. Documentation directories on the product CD

Directory	Description
`/doc/`*`LANG`*`/pdf` **Note:** *LANG* is one of: **en_US**, **ja_JP**, **zh_CN**.	IBM XL C/C++ documentation (PDF)

After you install XL C/C++ (default installation), you can find the PDF documentation in the following directories:

Table 14. Documentation directories after installation

Directory	Description
/usr/vacpp/doc/*LANG*/pdf **Note:** *LANG* is one of: **en_US**, **ja_JP**, **zh_CN**.	IBM XL C/C++ documentation (PDF)

Viewing the manual pages

Before you can view the manual pages, you must enable them. See "Enabling the manual pages" on page 17 for instructions.

To invoke a manual page, enter the following on the command line:

```
man command
```

Where *command* is a command, for example **xlC**.

The following indicates how to navigate a manual page:

Key	Action
Enter	Scroll down one line
Spacebar	Scroll down one page
b	Scroll up one page
q	Quit the manual page

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