About Sun WorkShop 6 update 2 Documentation

Forte Developer 6 update 2 (Sun WorkShop 6 update 2)

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Important Note on New Product Names

As part of Sun's new developer product strategy, we have changed the names of our development tools from Sun WorkShop™ to Forte™ Developer products. The products, as you can see, are the same high-quality products you have come to expect from Sun; the only thing that has changed is the name.

We believe that the Forte™ name blends the traditional quality and focus of Sun's core programming tools with the multi-platform, business application deployment focus of the Forte tools, such as Forte Fusion™ and Forte™ for Java™. The new Forte organization delivers a complete array of tools for end-to-end application development and deployment.

For users of the Sun WorkShop tools, the following is a simple mapping of the old product names in WorkShop 5.0 to the new names in Forte Developer 6.

Old Product Name	New Product Name
Sun Visual WorkShop™ C++	Forte™ C++ Enterprise Edition 6
Sun Visual WorkShop™ C++ Personal Edition	Forte™ C++ Personal Edition 6
Sun Performance WorkShop™ Fortran	Forte™ for High Performance Computing 6
Sun Performance WorkShop™ Fortran Personal Edition	Forte™ Fortran Desktop Edition 6
Sun WorkShop Professional™ C	Forte™ C 6
Sun WorkShop™ University Edition	Forte™ Developer University Edition 6

In addition to the name changes, there have been major changes to two of the products.

- Forte for High Performance Computing contains all the tools formerly found in Sun Performance WorkShop Fortran and now includes the C++ compiler, so High Performance Computing users need to purchase only one product for all their development needs.
- Forte Fortran Desktop Edition is identical to the former Sun Performance WorkShop Personal Edition, except that the Fortran compilers in that product no longer support the creation of automatically parallelized or explicit, directive-based parallel code. This capability is still supported in the Fortran compilers in Forte for High Performance Computing.

We appreciate your continued use of our development products and hope that we can continue to fulfill your needs into the future.

Contents

Before You Begin 1

Typographic Conventions 1

Supported Platforms 2

Accessing Sun WorkShop Development Tools and Man Pages 2

Sending Your Comments 4

1. Accessing Sun WorkShop 6 update 2 Documentation 5

Documentation Requirements 5

Accessing the Documentation 6

Product Documentation Available With the Installed Product 6

Product Documentation From the Forte Developer Web Site 8

Manuals From `docs.sun.com` 8

Accessing Related Documentation 9

Ordering Printed Manuals 9

2. Understanding the Changes to Sun WorkShop Documentation 11

Documentation Index 11

New Manuals 12

Rewritten or Reorganized Manuals 12

3. Identifying the Documentation That You Need 13

Installation and Licensing 14

Release Documents 14

Programming Tools 15

Sun WorkShop 6 update 2 Development Tools 15

Sun WorkShop Visual 6 update 2 16

Sun WorkShop TeamWare 6 update 2 16

Programming Languages 16

C 17

C++ 17

Fortran 19

Tables

TABLE 3-1 Forte Developer 6 update 2 / Sun WorkShop 6 update 2 Installation Collection 14

TABLE 3-2 Forte Developer 6 update 2 / Sun WorkShop 6 update 2 Release Collection 14

TABLE 3-3 Forte Developer 6 update 2 / Sun WorkShop 6 update 2 Development Tools Collection 15

TABLE 3-4 Forte Developer 6 update 2 / Sun WorkShop Visual 6 update 2 Collection 16

TABLE 3-5 Forte TeamWare 6 update 2 / Sun WorkShop TeamWare 6 update 2 Collection 16

TABLE 3-6 Forte C 6 update 2 / Sun WorkShop 6 update 2 C Compiler Collection 17

TABLE 3-7 Forte C++ 6 update 2 / Sun WorkShop 6 update 2 C++ Compiler Collection 17

TABLE 3-8 Sun WorkShop Memory Monitor Manual 18

TABLE 3-9 Standard C++ Library Manuals 18

TABLE 3-10 Tools.h++ Manuals 18

TABLE 3-11 Forte for High Performance Computing 6 update 2 / Sun WorkShop 6 update 2 Fortran 77/95 Compiler Collection 19

TABLE 3-12 Forte / Sun Performance Library 6 update 2 Collection 19

TABLE 3-13 Numerical Computation Guide Collection 19

Before You Begin

About Sun WorkShop 6 update 2 Documentation describes the documentation available with this release and how to access it.

Typographic Conventions

Typeface	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this.
AaBbCc123	Command-line placeholder text; replace with a real name or value	To delete a file, type `rm` *filename*.

Supported Platforms

This Sun WorkShop™ release supports versions 2.6, 7, and 8 of the Solaris™ *SPARC™ Platform Edition* and Solaris™ *Intel Platform Edition* operating environments.

Accessing Sun WorkShop Development Tools and Man Pages

The Sun WorkShop product components and man pages are not installed into the standard `/usr/bin/` and `/usr/share/man` directories. To access the Sun WorkShop compilers and tools, you must have the Sun WorkShop component directory in your `PATH` environment variable. To access the Sun WorkShop man pages, you must have the Sun WorkShop man page directory in your `MANPATH` environment variable.

For more information about the `PATH` variable, see the `csh`(1), `sh`(1), and `ksh`(1) man pages. For more information about the `MANPATH` variable, see the `man`(1) man page. For more information about setting your `PATH` and `MANPATH` variables to access this release, see the *Sun WorkShop 6 update 2 Installation Guide* or your system administrator.

Note – The information in this section assumes that your Sun WorkShop 6 update 2 products are installed in the `/opt` directory. If your product software is not installed in the `/opt` directory, ask your system administrator for the equivalent path on your system.

Accessing Sun WorkShop Compilers and Tools

Use the steps below to determine whether you need to change your `PATH` variable to access the Sun WorkShop compilers and tools.

To Determine If You Need to Set Your PATH Environment Variable

1. **Display the current value of the PATH variable by typing:**

```
% echo $PATH
```

2. **Review the output for a string of paths containing /opt/SUNWspro/bin/.**

   If you find the path, your PATH variable is already set to access Sun WorkShop development tools. If you do not find the path, set your PATH environment variable by following the instructions in the next section.

To Set Your PATH Environment Variable to Enable Access to Sun WorkShop Compilers and Tools

1. **If you are using the C shell, edit your home .cshrc file. If you are using the Bourne shell or Korn shell, edit your home .profile file.**

2. **Add the following to your PATH environment variable.**

   /opt/SUNWspro/bin

Accessing Sun WorkShop Man Pages

Use the following steps to determine whether you need to change your MANPATH variable to access the Sun WorkShop man pages.

To Determine If You Need to Set Your MANPATH Environment Variable

1. **Request the workshop man page by typing:**

```
% man workshop
```

2. **Review the output, if any.**

   If the workshop(1) man page cannot be found or if the man page displayed is not for the current version of the software installed, follow the instructions in the next section for setting your MANPATH environment variable.

To Set Your MANPATH Environment Variable to Enable Access to Sun WorkShop Man Pages

1. **If you are using the C shell, edit your home `.cshrc` file. If you are using the Bourne shell or Korn shell, edit your home `.profile` file.**
2. **Add the following to your `MANPATH` environment variable.**

   ```
   /opt/SUNWspro/man
   ```

Sending Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. Email your comments to Sun at this address:

`docfeedback@sun.com`

CHAPTER 1

Accessing Sun WorkShop 6 update 2 Documentation

This chapter describes how to access Sun WorkShop™ 6 update 2 product documentation and related documentation.

Documentation Requirements

- To view the product manuals that are available in PDF files, you need Adobe® Acrobat Reader software. If you do not have Adobe Acrobat Reader software, go to the following Web site to download the software:

  `http://www.adobe.com/products/acrobat/readstep.html`

- To view product documentation that is available in HTML format, you must use Netscape™ Communicator 4.0 or a compatible Netscape version. Netscape Communicator is included in the Solaris™ 7 and Solaris 8 operating environments. For the Solaris 2.6 operating environment, go to the following Web site to download the software:

  `http://www.netscape.com/download/index.html`

  From the Netscape Web site, you can download Netscape Communicator for the Solaris 2.5.1 operating environment (the Solaris 2.5.1 version of Netscape Communicator is compatible with the Solaris 2.6 operating environment).

- To view Sun WorkShop online help (in HTML), you must have JavaScript™ enabled, which is a default setting in Netscape preferences.

Accessing the Documentation

You can access the Sun WorkShop product documentation in the following ways:

- Product documentation (including the online help) from the installed product on your local system or network
- Product man pages, component readme files, release notes, and most manuals from the product Web site
- Product manuals from the `docs.sun.com`[sm] Web site

Product Documentation Available With the Installed Product

Note – The information in this section assumes that your Sun WorkShop software was installed in the `/opt` directory. If your product software is not installed in the `/opt` directory, ask your system administrator for the equivalent path on your system.

Manuals

To access the product manuals, do one of the following:

- If you have the Sun WorkShop or Sun WorkShop™ TeamWare tools running, choose Help ➤ About Documentation, which displays the documentation index in your Netscape browser.
- Open the following documentation index file in your Netscape browser:

  `/opt/SUNWspro/docs/index.html`

  The documentation index lists whether a manual is a PDF file or an HTML file. See "Documentation Requirements" on page 5 for more information about the software you need to view the documentation.

Note – Information in the man pages and component readme files overrides information in the manuals (see "Man Pages" on page 7 and "Component Readme Files" on page 7).

AnswerBook2 collections are not provided.

Online Help

The online help system (in HTML) contains information about Sun WorkShop development tools and Sun WorkShop TeamWare source code management tools. You can access the online help in the following ways:

- Through the Help menu in any Sun WorkShop or Sun WorkShop TeamWare window
- By opening the following file in your Netscape browser:

  `/opt/SUNWspro/docs/index.html`

You must have Netscape Communicator 4.0 or a compatible Netscape version in order to view the online help. For information about downloading the software, see "Documentation Requirements" on page 5.

Man Pages

Man pages are online reference manual pages describing user commands, libraries that are supplied with compilers, and other types of commands. Man pages contain reference information, including command syntax, usage, and related commands.

To access a man page in HTML format, open the following file in your Netscape browser:

`/opt/SUNWspro/docs/index.html`

Click the link to the document you want to view.

To access a man page from the command line, type the following at a command-line prompt:

```
% man command
```

See the `man`(1) and the `apropos`(1) man pages for more information.

If the man page you requested cannot be found, follow the instructions in "Accessing Sun WorkShop Development Tools and Man Pages" on page 2.

Component Readme Files

The readme files contain last-minute information about Sun WorkShop 6 update 2 tools and compilers and are available in text and in HTML format.

To access the HTML version of a readme file, open the following file in your Netscape Communicator 4.0 or compatible browser:

```
/opt/SUNWspro/docs/index.html
```

To open a document, click on the document's title.

To access a text version of a readme file, do the following:

1. **Type the following commands at a command line:**

```
% cd /opt/SUNWspro/READMEs
% ls
```

2. **View a readme file by typing:**

```
% more readme-filename
```

Product Documentation From the Forte Developer Web Site

You can access the product man pages, component readme files, release notes, and most manuals from the documentation index on the Forte™ Developer Web site. Point your browser to:

```
http://www.sun.com/forte/developer
```

Click on the Forte product of your choice and then click Documentation.

Manuals From `docs.sun.com`

The `docs.sun.com` Web site (at `http://docs.sun.com`) allows you to access, print, and buy Sun Microsystems technical documentation. You can search for a key word or book title, or you can browse by subject, document collection, or product.

For a complete list of Sun WorkShop 6 update 2 book titles and descriptions, see Chapter 3.

Note – If you cannot find a product manual through the `docs.sun.com` Web site, you can access the manual through the documentation index that is installed with the product on your local system or network. For more information, see "Product Documentation Available With the Installed Product" on page 6.

Accessing Related Documentation

The following table describes related documentation that is available through the `docs.sun.com` Web site.

Document Collection	Document Title	Description
Numerical Computation Guide Collection	*Numerical Computation Guide*	Describes issues regarding the numerical accuracy of floating-point computations.
Solaris 8 Reference Manual Collection	See the titles of man page sections.	Provides information about the Solaris operating environment.
Solaris 8 Software Developer Collection	*Linker and Libraries Guide*	Describes the operations of the Solaris link-editor and runtime linker.
Solaris 8 Software Developer Collection	*Multithreaded Programming Guide*	Covers the POSIX and Solaris threads APIs, programming with synchronization objects, compiling multithreaded programs, and finding tools for multithreaded programs.

Ordering Printed Manuals

You can order product documentation directly from Sun through the `docs.sun.com` Web site or from Fatbrain.com, an Internet bookstore. To find the Sun Documentation Center at Fatbrain.com, point your browser to:

`http://www.fatbrain.com/documentation/sun`

CHAPTER 2

Understanding the Changes to Sun WorkShop Documentation

This chapter describes changes made to the documentation since the Sun WorkShop™ 5.0 release.

Documentation Index

Sun WorkShop product documentation is now available through a documentation index installed with the product on your local system or network.

To access the documentation index, point your Netscape™ Communicator 4.0 or compatible Netscape version browser to the following file:

```
/opt/SUNWspro/docs/index.html
```

Note – If your Sun WorkShop software is not installed in the `/opt` directory, ask your system administrator for the equivalent path on your system.

The documentation index lists whether a manual is a PDF file or an HTML file. For more information about the software that is necessary to view the documentation, see "Documentation Requirements" on page 5.

New Manuals

See "Documentation Index" on page 11 for how to access these manuals:

- *Fortran 95 Interval Arithmetic Programming Reference* describes the intrinsic `INTERVAL` data type supported by the Fortran 95 compiler.
- *C++ Interval Arithmetic Programming Reference* describes the C++ interface to the C++ interval arithmetic library provided with the Sun WorkShop 6 update 2 C++ compiler (5.3).
- *Sun Performance Library User's Guide for Fortran and C* describes how to use the Sun-specific features of the Sun Performance Library™, which is a collection of optimized, high-speed mathematical subroutines used to solve linear algebra problems and other numerically intensive problems.
- *What's New in Sun WorkShop 6 update 2* describes the new features of the Sun WorkShop™ 6 update 2 compilers and tools, plus the new features in the Sun WorkShop 6 and Sun WorkShop 6 update 1 releases.

Rewritten or Reorganized Manuals

See "Documentation Index" on page 11 for how to access these manuals:

- *Analyzing Program Performance With Sun WorkShop*

  The *Analyzing Program Performance With Sun WorkShop* manual and online help have been substantially rewritten to reflect the major changes in the Performance Analyzer and the Sampling Collector.

- *C++ Library Reference* and *C++ Programming Guide*

  These books are no longer offered. The information in the *C++ Library Reference* and the *C++ Programming Guide* is now integrated into the *C++ User's Guide*.

- *Introduction to Sun WorkShop*

  As of the Sun WorkShop 6 release, *Introduction to Sun WorkShop* replaces *Using Sun WorkShop*. This book now acquaints you with the basic program development features of the Sun WorkShop integrated programming environment and refers you to specific sections of the Sun WorkShop online help for step-by-step instructions and more information about concepts and windows.

CHAPTER 3

Identifying the Documentation That You Need

This chapter lists the product manuals by the following subjects:

- Installation and Licensing
- Release Documents
- Programming Tools
- Programming Languages

For each subject, a table lists the relevant document titles and descriptions. The table title next to the table number is the name of the document collection. On the `docs.sun.com` Web site (`http://docs.sun.com`), you can search for a key word or book title, and you can browse by subject, document collection, or product. For more information, see "Accessing the Documentation" on page 6.

Installation and Licensing

TABLE 3-1 Forte Developer 6 update 2 / Sun WorkShop 6 update 2 Installation Collection

Title	Description
Sun WorkShop 6 update 2 Installation Guide	Gives instructions for how to install Sun WorkShop tools, obtain and install licenses, and troubleshoot installation and licensing problems.
Sun WorkShop 6 update 2 Installation and Licensing Reference	Gives instructions for how to configure single and multiple independent and redundant license servers and manage and administer licenses.

Release Documents

TABLE 3-2 Forte Developer 6 update 2 / Sun WorkShop 6 update 2 Release Collection

Title	Description
About Sun WorkShop 6 update 2 Documentation	Describes the documentation available with this release and how to access it.
What's New in Sun WorkShop 6 update 2	Provides information about the new features in this release.

Programming Tools

This section has the following subsections:

- Sun WorkShop 6 update 2 Development Tools
- Sun WorkShop Visual 6 update 2
- Sun WorkShop TeamWare 6 update 2

Sun WorkShop 6 update 2 Development Tools

TABLE 3-3 Forte Developer 6 update 2 / Sun WorkShop 6 update 2 Development Tools Collection

Title	Description
Analyzing Program Performance With Sun WorkShop	Explains how to use the Sampling Collector and Performance Analyzer to analyze program performance. Includes examples, a detailed discussion of architecture and compilation/ execution issues that affect program analysis, reference information for the `dbx` collector, the `collect` commands for data collection, and the command-line analysis tool `er_print`. Also includes information about the UNIX profiling tools `prof`, `gprof`, and `tcov`.
Debugging a Program With `dbx`	Provides information on how to debug a program using `dbx` commands. Included are references to how to do the same debugging operations in the Debugging window.
Introduction to Sun WorkShop	Acquaints you with the basic features of the Sun WorkShop integrated programming environment.

Sun WorkShop Visual 6 update 2

TABLE 3-4 Forte Developer 6 update 2 / Sun WorkShop Visual 6 update 2 Collection

Title	Description
Sun WorkShop Visual User's Guide	Describes how to use Visual to create C++ and Java™ graphical user interfaces.

Sun WorkShop TeamWare 6 update 2

TABLE 3-5 Forte TeamWare 6 update 2 / Sun WorkShop TeamWare 6 update 2 Collection

Title	Description
Sun WorkShop TeamWare User's Guide	Describes how to use the Sun WorkShop TeamWare code management tools.

Programming Languages

This section has the following subsections:

- C
- C++
  - Forte C++ 6 update 2 / Sun WorkShop 6 update 2 C++ Compiler Collection
  - Sun WorkShop Memory Monitor Manual
  - Standard C++ Library Manuals
  - Tools.h++ Manuals
- Fortran
  - Forte for High Performance Computing 6 update 2 / Sun WorkShop 6 update 2 Fortran 77/95 Compiler Collection
  - Forte / Sun Performance Library 6 update 2 Collection
  - Numerical Computation Guide Collection

C

TABLE 3-6 Forte C 6 update 2 / Sun WorkShop 6 update 2 C Compiler Collection

Title	Description
C User's Guide	Describes the C compiler options, Sun-specific capabilities such as pragmas, the `lint` tool, parallelization, migration to a 64-bit operating system, and ANSI/ISO-compliant C.

See also TABLE 3-12 for the *Sun Performance Library User's Guide for Fortran and C*.

C++

TABLE 3-7 Forte C++ 6 update 2 / Sun WorkShop 6 update 2 C++ Compiler Collection

Title	Description
C++ Migration Guide	Provides guidance on migrating code to the version of the Sun WorkShop C++ compiler available with this release (5.3).
C++ User's Guide	Provides information on command-line options and how to use the compiler. Describes the C++ libraries, including C++ Standard Library, Tools.h++ Class Library, Sun WorkShop Memory Monitor, Iostream, and Complex. Explains how to use the new compiler features in order to write more efficient programs and covers templates, exception handling, runtime type identification, cast operations, performance, and multithreaded programs.
C++ Interval Arithmetic Programming Reference	Describes the C++ interface to the C++ interval arithmetic library provided with the Sun WorkShop™ 6 update 2 C++ compiler (5.3).

The following manuals are only available with the Sun WorkShop tools that are installed on your local system or network (in HTML format). These manuals are *not* available through the `docs.sun.com` or the `www.fatbrain.com` Web sites. To access these books, see "Product Documentation Available With the Installed Product" on page 6.

TABLE 3-8 Sun WorkShop Memory Monitor Manual

Title	Description
Sun WorkShop Memory Monitor User's Manual	Describes how the Sun WorkShop Memory Monitor solves the problems of memory management in C and C++.

TABLE 3-9 Standard C++ Library Manuals

Title	Description
Standard C++ Library Class Reference	Provides details on the Standard C++ Library.
Standard C++ Library User's Guide	Describes how to use the Standard C++ Library.

TABLE 3-10 Tools.h++ Manuals

Title	Description
Tools.h++ Class Library Reference	Provides details on the `Tools.h++` class library.
Tools.h++ User's Guide	Discusses how to use the C++ classes to enhance the efficiency of your programs.

Fortran

TABLE 3-11 Forte for High Performance Computing 6 update 2 / Sun WorkShop 6 update 2 Fortran 77/95 Compiler Collection

Title	Description
Fortran Library Reference	Describes the routines in the Sun WorkShop Fortran libraries.
Fortran Programming Guide	Presents essential information programmers need in order to develop efficient applications using the Sun WorkShop Fortran compilers.
Fortran User's Guide	Describes the compile-time environment and command-line options for the Sun WorkShop Fortran compilers.
FORTRAN 77 Language Reference	Specifies the programming language and extensions accepted by the Sun WorkShop Fortran 77 compiler.
Fortran 95 Interval Arithmetic Programming Reference	Describes the intrinsic `INTERVAL` data type supported by the Fortran 95 compiler.

TABLE 3-12 Forte / Sun Performance Library 6 update 2 Collection

Title	Description
Sun Performance Library Reference Manual	Provides the section 3P manual (man) pages that describe in detail the Sun Performance Library routines.
Sun Performance Library User's Guide for Fortran and C	Describes how to use the Sun-specific features of the Sun Performance Library, which is a collection of optimized, high-speed mathematical subroutines used to solve linear algebra problems and other numerically intensive problems.

TABLE 3-13 Numerical Computation Guide Collection

Title	Description
Numerical Computation Guide	Describes issues regarding the numerical accuracy of floating-point computations.