



Java Dynamic Management Kit 5.0 Installation Guide

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Preface

The Java™ Dynamic Management Kit (DMK) provides a set of Java classes and tools for developing management solutions. This product conforms to the Java Management Extensions (the JMX™ specification), v1.1 Maintenance Release, which defines a three-level architecture:

- Resource instrumentation
- Dynamic agents
- Remote management applications

The JMX architecture is applicable to network management, remote system maintenance, application provisioning, and the new management needs of the service-based network.

This installation guide contains instructions to install the Java DMK 5.0 software from a local CD-ROM drive. This product is supported on the Solaris™ operating environment and Windows 2000 operating environment. The instructions assume that you have experience installing software on the operating environment that you are using.

How This Book Is Organized

This installation guide contains the following chapters:

- Chapter 1, which provides instructions for installing the software on a Solaris platform
- Chapter 2, which provides instructions for installing the software on a Windows 2000 platform
- Chapter 3, which provides instructions for installing the software on platforms other than Solaris and Windows 2000

Getting Help With Your Installation

If you have problems with any part of the product installation process, call your authorized service provider. Have the following information ready:

- The model number of your machine.
- The serial number of your machine.
- The release number of the Windows 2000 or Solaris operating environment.
 - On the Solaris platform, use the `uname` command to display the SunOS™ operating system release number:

```
prompt% uname -sr
SunOS 5.8
```
 - On the Windows 2000 platform, click the Help menu of any Windows 2000 Explorer window and select the **About Windows 2000** item.
- The product release number: 5.0
- The product serial number shown on the label or the serial number you were given when downloading the software.

Related Documentation

The books in Table P-1 are part of the Java DMK documentation set:

TABLE P-1 Related Documentation

Book Title	Part Number
<i>Getting Started with the Java Dynamic Management Kit 5.0</i>	816-4176-10
<i>Java Dynamic Management Kit 5.0 Tutorial</i>	816-4178-10
<i>Java Dynamic Management Kit 5.0 Tools Reference</i>	816-4177-10

These books are available online after you have installed the Java DMK documentation package. The online documentation also includes the Javadoc API for the Java packages and classes, including those of the JMX specification. To access the online documentation, using any web browser, open the home page corresponding to your platform:

Operating Environment	Homepage Location
Solaris	<i>installDir</i> /SUNWjdmk/jdmk5.0/index.html
Windows 2000	<i>installDir</i> \SUNWjdmk\jdmk5.0\index.html

In these file names, *installDir* refers to the base directory or folder of your Java DMK installation. In a default installation procedure, *installDir* is:

- /opt on the Solaris platform
- C:\Program Files on the Windows 2000 platform

These conventions are used throughout this book whenever referring to files or directories that are part of the installation.

The Java Dynamic Management Kit relies on the management architecture of the JMX specification. The specification document, *Java Management Extensions Instrumentation and Agent Specification, v1.1* (Maintenance Release, March 2002), is provided in the product documentation package, under the file name `jmx_instr_agent.pdf`.

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<http://www.sun.com/documentation/>

You can also purchase printed copies of select Sun documentation from iUniverse, the Sun documentation provider, at:

<http://corppub.iuniverse.com/marketplace/sun/>

Typographic Conventions

The following table describes the typographic changes used in this book.

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

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

Shell	Prompt
C shell prompt	<code>machine-name%</code>
C shell superuser prompt	<code>machine-name#</code>
Bourne shell and Korn shell prompt	<code>\$</code>
Bourne shell and Korn shell superuser prompt	<code>#</code>

Installation on a Solaris Platform

This chapter describes how to install, remove, and reinstall the Java Dynamic Management Kit (DMK) 5.0 in a Solaris environment. The procedures are described in the following sections:

- “Planning Your Installation” on page 9
- “Installing the Software on a Solaris Platform” on page 13
- “Removing the Software” on page 17
- “Working Directories” on page 19
- “Setting the PATH and CLASSPATH Environment Variables” on page 20

Planning Your Installation

Plan your installation to determine where to install the packages supplied with the product and to ensure that your machine meets the installation requirements.

Upgrading From a Previous Version

If you are upgrading your Java DMK from versions 3.0, 3.2, 4.0, 4.1 or 4.2 to version 5.0, you are not required to uninstall the earlier version. Several versions of the product can coexist on the same system, since each version has its own version number in its installation path.

If you are reinstalling version 5.0 of the Java DMK, you should first remove your previous installation. This procedure is described in “Removing the Software” on page 17. You can then reinstall the current version.

Software Packages

The Java DMK 5.0 is composed of the Solaris software packages listed in Table 1-1.

TABLE 1-1 Software and Documentation Packages

Package Name	Package Description
SUNWjdrt	Contains Java dynamic management runtime classes (<code>jdmkrt.jar</code>), with the exception of the SNMP manager API classes. Install this package on all machines where you intend to develop or run Java dynamic management agents and manager applications.
SUNWjdk	Contains the Java DMK tools, <code>proxygen</code> and <code>mibgen</code> (<code>jdmktool.jar</code>). Install this package on all machines where you intend to develop Java dynamic management agents and manager applications. Installing the package on machines where you do not want to develop Java dynamic management agents and manager applications is optional.
SUNWjdex	Contains the Java source code files of the supplied examples. Installing this package is optional.
SUNWjddc	Contains all documentation for the Java DMK in HTML format. Installing this package is optional.
SUNWjsnmp	Contains the SNMP manager API classes (<code>jsnmpapi.jar</code>). When you install this package, it replaces that installed with the Solaris operating environment. See “SUNWjsnmp Package” on page 10.

Deciding Which Packages to Install

You can install only certain packages on a machine, according to your requirements. To be able to run Java dynamic management agents and manager applications on a machine, you must install the two runtime packages: `SUNWjdrt` and `SUNWjsnmp`. If, in addition, you want to be able to develop Java dynamic management agents and manager applications, you must also install the toolkit package: `SUNWjdk`. The examples package (`SUNWjdex`), and the documentation package (`SUNWjddc`), are both optional, and are designed to enhance your understanding of the Java DMK.

SUNWjsnmp Package

You might already have on your system an instance of version 1.0 of the `SUNWjsnmp` package, provided with the Solaris 8 operating environment update 7 or a later release. The Java DMK 5.0 software includes version 5.0 of the `SUNWjsnmp` package which is a more recent version. Version 5.0 of `SUNWjsnmp` is *incompatible* with version 1.0. If version 1.0 is already installed on your system, you *must* remove it using the `pkgrm` command before installing the Java DMK 5.0 software.

Version 1.0 of the `SUNWjsnmp` package, provided with the Solaris operating environment, contains the `jsnmpapi.jar` file which is installed at the following location:

```
/usr/sadm/lib/wbem/jsnmpapi.jar
```

Version 5.0 of the `SUNWjsnmp` package, provided with the Java DMK 5.0 software, contains a more recent version of the `jsnmpapi.jar` file, which is installed at the following location:

```
/usr/sadm/lib/snmp/jsnmpapi.jar
```

When version 5.0 of the `SUNWjsnmp` package is installed, it creates a symbolic link from `/usr/sadm/lib/wbem/jsnmpapi.jar` to `/usr/sadm/lib/snmp/jsnmpapi.jar`. This symbolic link replaces the `/usr/sadm/lib/wbem/jsnmpapi.jar` file, if present.



Caution – If any other packages (for example the `SUNWwbcou` WBEM Services package) depend on the `SUNWjsnmp` package, you must not remove the `SUNWjsnmp` package provided with the Java DMK 5.0 software, during a later uninstallation process.

Provided you remove version 1.0 of the `SUNWjsnmp` package before installing the Java DMK 5.0 software, both the `pkgrm` command and the uninstallation wizard will detect any dependencies on the instance of the `SUNWjsnmp` package created during the installation process, and will not remove this package if any packages depend on it. See “Removing the Software” on page 17 for more details on the uninstallation procedures.

If you do not remove the existing instance of the `SUNWjsnmp` package before installing the Java DMK 5.0 software, the installation process will create a second instance of this package (`SUNWjsnmp.2`). Both the `pkgrm` command and the uninstallation wizard will remove this instance, even if there are dependencies on the `SUNWjsnmp` package, thus breaking the symbolic link created at installation time. If you inadvertently remove the `SUNWjsnmp` package in this way, you can restore the symbolic link by reinstalling the version of this package provided with the Java DMK 5.0 software.

Installation Requirements

Before you install the Java DMK 5.0 software, make sure that your system meets the minimum hardware and software requirements, and that you have sufficient disk space available. These installation requirements are described in the sections that follow.

Hardware Platform

The Java DMK runs on the Solaris operating environment, SPARC® Platform Edition, and requires a minimum of 64 Mbytes of RAM.

Software Requirements

The Java DMK requires the following software:

- Solaris 8 operating environment
- Solaris 9 operating environment
- Java 2 SDK (JDK™ 1.4)

Disk Space

Table 1–2 shows the disk space required by the software and documentation packages and the base directory where each package is installed by default.

TABLE 1–2 Disk Space and Default Base Directories

Package	Description	Disk Space (Mbytes)	Default Base Directory
SUNWjdrct	Runtime classes	0.8	/opt
SUNWjdtk	Toolkit classes	0.4	/opt
SUNWjdex	Examples	1.8	/opt
SUNWjddc	Online documentation	18.0	/opt
SUNWjsnmp	SNMP manager API classes	0.4	not relocatable (see note)
Total:		21.4	

Note – SUNWjsnmp is not a relocatable package. The absolute installation path of this package is always /usr/sadm/lib/snmp/jsnmpapi.jar. When the package is installed, a symbolic link to this file is created from /usr/sadm/lib/wbem/jsnmpapi.jar. See “SUNWjsnmp Package” on page 10.

The installation software computes the size of the packages you want to install and warns you if your disk is full.

By default, the packages are installed under the directories listed in Table 1–2. All the packages *except* the `SUNWjsnmp` package can be relocated to another base directory either by choosing the **Custom** installation in Step 5 of the procedure “To Install the Software Using the Installation Wizard” on page 13, or by using the `-a none` option in Step 4 of the procedure “To Install the Software Using the `pkgadd` Command” on page 15.

To change the *root path* of the installation, you must use the `-R` option of the `pkgadd` command. See the `pkgadd(1M)` man page.

Installing the Software on a Solaris Platform

These instructions assume that you have experience installing software products on systems that are running the Solaris operating environment. The instructions are for installing the software from a local CD-ROM drive.

The installation process uses the Solaris Web Start Wizards™ software to simplify and speed up the installation of packages on a Solaris platform. The installation wizard is a Java class that runs in the Java runtime environment, version 1.2.2 or later. Make sure that the `java` command is in your path before you run the installation script.

You must become root user in order to install the Java DMK on a Solaris platform.

If you cannot launch the installation wizard, or if you want to install the packages in several directories that are different from the default locations listed in Table 1–2, follow the procedure “To Install the Software Using the `pkgadd` Command” on page 15.

▼ To Install the Software Using the Installation Wizard

If you are reinstalling the version 5.0 of the Java DMK software, you must first remove the existing software packages. See “Removing the Software” on page 17.



Caution – If you already have an instance of the `SUNWjsnmp` package on your system, you must remove this before installing the Java DMK 5.0 software. See “`SUNWjsnmp` Package” on page 10 for more detailed information.

1. **Insert the product CD-ROM into the CD-ROM drive.**

2. Determine whether the Volume Manager (`vold`) is running on your machine.

- If the Volume Manager is running on your machine (the default), then the CD-ROM is mounted automatically under `/cdrom/jdmk_5_0` when it is loaded in the drive. In this case, go to Step 3.
- If the Volume Manager (`vold`) is not running on your machine, perform the following steps:

a. **Become root user.**

b. **Create a directory called `/cdrom/jdmk_5_0`**

```
# mkdir -p /cdrom/jdmk_5_0
```

c. **Mount the CD-ROM manually.**

```
# mount -rF hsfs CD-RomDeviceName /cdrom/jdmk_5_0
```

CD-RomDeviceName is the directory that represents the CD-ROM drive on your machine, for example, `/dev/dsk/c0t2d0s0`.

3. Start the Java DMK installation:

```
$ /cdrom/jdmk_5_0/solaris/install.sh
```

4. Type the root password for your system when prompted to do so by the installer.

```
Solaris Web Start installer
```

```
To use this installer you will need to be the system's root user.
```

```
Please enter this system's root user password
```

```
Password:
```

This launches the interactive installer window from which you complete the installation. If you encounter problems while using the `installer` script or running the installation wizard, use the alternative installation procedure described in “To Install the Software Using the `pkgadd` Command” on page 15.

5. Follow the instructions of the installation wizard to complete the installation.

- If you choose the **Typical** installation, all packages will be installed in the default locations listed in Table 1-2.
- If you choose the **Custom** installation, you can select the packages you want to install and specify a different location where all these packages *except* the `SUNWj5snmp` package will be installed. `SUNWj5snmp` is not a relocatable package. Click the `Browse` button and then choose the path of the new installation directory. The installation wizard automatically creates an uninstallation wizard that can remove the exact configuration that is installed. See “Removing the Software” on page 17 for details.

6. (Optional) Click the `Details` button on the last screen of the wizard to check that the packages were successfully installed.

7. Exit the wizard when you have completed the installation.

8. (Optional) View the installation logs in the `/var/sadm/install/logs` directory.

9. (Optional) View or copy the documents in the `/cdrom/jdmk_5_0/docs` directory.

These printable documents are not included in the installed packages, for space considerations. See *Getting Started with the Java Dynamic Management Kit 5.0* for a description of the Java DMK documentation set.

10. When you are finished, unmount and eject the CD-ROM as follows:

- If Volume Manager (`vold`) is running on your machine, the CD-ROM is unmounted automatically when it is ejected:

```
$ eject cdrom
```

- If Volume Manager (`vold`) is *not* running on your machine, unmount the CD-ROM manually before you eject it (you must become root to run the `umount` command):

```
# umount /cdrom/jdmk_5_0
# eject cdrom
# rmdir /cdrom/jdmk_5_0
```

▼ To Install the Software Using the `pkgadd` Command

Use this installation procedure if you cannot launch the installation wizard, or if you want to install the packages in several different directories instead of in the default locations listed in Table 1-2.



Caution – If you already have an instance of the `SUNWjsnmp` package on your system, you must remove this before installing the Java DMK 5.0 software. See “`SUNWjsnmp` Package” on page 10 for more detailed information.

1. Insert the product CD-ROM into the CD-ROM drive.

2. Become root user.

3. Determine whether the Volume Manager (`vold`) is running on your machine.

- If the Volume Manager is running on your machine (the default), then the CD-ROM is mounted automatically under `/cdrom/jdmk_5_0` when it is loaded in the drive. In this case, go to Step 4.

- If the Volume Manager (`vold`) is not running on your machine, perform the following steps:

a. **Create a directory called `/cdrom/jdmk_5_0`**

```
# mkdir -p /cdrom/jdmk_5_0
```

b. Mount the CD-ROM manually.

```
# mount -rF hsfs CD-RomDeviceName /cdrom/jdmk_5_0
```

CD-RomDeviceName is the directory which represents the CD-ROM drive on your machine, for example, `/dev/dsk/c0t2d0s0`.

4. Determine whether you need to specify a different base directory in which to install each package:

- If you want to install all the packages in the default base directory, type the following command to start `pkgadd`:

```
#!/usr/sbin/pkgadd -d /cdrom/jdmk_5_0/solaris
```

In this case, in Step 6, you will not be prompted to enter a path for the packages.

- If you want to specify a different base directory in which to install each package, type the following command to start `pkgadd`:

```
#!/usr/sbin/pkgadd -a none -d /cdrom/jdmk_5_0/solaris
```

In this case, in Step 6, you will be prompted to enter a path for each package.

5. Type the numbers corresponding to the packages you want to install.

To install the full Java DMK, including the online documentation, type **a11** to choose all the available packages. The installation program might prompt you with questions about package dependencies and running installation scripts. Type **y** to answer yes to all questions and complete the installation normally.

6. If you used the `-a none` option in Step 4, type the path to the base directory or directories where you want to install the packages, when prompted to do so.

You must type an absolute path, for example:

```
Enter path to package base directories [?,q] /home/username
```

Note – The `SUNWjsnmp` package is not relocatable. Therefore, the `-a none` option does not allow you to change the installation path of this package. The absolute installation path of this package is always `/usr/sadm/lib/snmp/jsnmpapi.jar`. When the package is installed, a symbolic link to this file is created from `/usr/sadm/lib/wbem/jsnmpapi.jar`

7. When the installation is finished, type `q` to quit `pkgadd`.

8. (Optional) View or copy the documents in the `/cdrom/jdmk_5_0/docs` directory.

These printable documents are not included in the installed packages, for space considerations. See *Getting Started with the Java Dynamic Management Kit 5.0* for a description of the Java DMK documentation set.

9. When you are finished, unmount and eject the CD-ROM as follows:

- If Volume Manager (`vold`) is running on your machine, the CD-ROM is unmounted automatically when it is ejected:

```
$ eject cdrom
```

- If Volume Manager (`vold`) is *not* running on your machine, unmount the CD-ROM manually before you eject it:

```
# umount /cdrom/jdkmk_5_0
# eject cdrom
# rmdir /cdrom/jdkmk_5_0
```

Reinstalling the Software

If you are reinstalling version 5.0 of the Java DMK, you must first remove the existing software packages, except the `SUNWjssnmp` package. See “Removing the Software” on page 17. Once you have removed the software packages, you can follow the steps in “To Install the Software Using the Installation Wizard” on page 13 or “To Install the Software Using the `pkgadd` Command” on page 15 to reinstall the Java DMK software.

Removing the Software

If you installed the software packages with the installation wizard, you can uninstall these packages using the uninstallation wizard that was created at installation time. See “To Remove the Software Using the Uninstallation Wizard” on page 18.

The uninstallation wizard can remove only packages added during the previous installation. If packages remain after running the uninstallation wizard, follow the procedure in “To Remove the Software Using the `pkgrm` Command” on page 19.

If you installed the software packages using the `pkgadd` command, you must use the `pkgrm` command to remove them. See “To Remove the Software Using the `pkgrm` Command” on page 19.



Caution – Do not remove the `SUNWjssnmp` package, if other packages that are not part of the Java DMK are dependent on it. See “`SUNWjssnmp` Package” on page 10.

▼ To Remove the Software Using the Uninstallation Wizard

The uninstallation wizard can be used to remove some or all of the software packages.

1. **Become root user.**
2. **Go to the location of the installed software and launch the uninstallation wizard.**

```
# cd installDir/SUNWjdmk/jdmk5.0/  
# java uninstall_jdmk50_solaris
```

You might need to add the current directory (.) to your CLASSPATH environment variable to run the wizard class.

You might need to type `xhost +` in another window to allow the wizard access to the display.

3. **Follow the instructions of the uninstallation wizard to complete the uninstallation.**
4. **Choose the type of uninstallation you want to perform and follow the instructions.**

A **Full** uninstall removes all of the Java DMK packages that are installed. It will not remove the SUNWjsnmp package if other packages depend on it (see “SUNWjsnmp Package” on page 10).

A **Partial** uninstall lets you choose the packages you want to remove. It will not remove the SUNWjsnmp package if other packages depend on it (see “SUNWjsnmp Package” on page 10). You can launch the uninstallation wizard again to remove the other packages at a later date.

Note – Each time you launch the uninstallation wizard, it lists all the packages that were initially installed using the installation wizard, even if some of these have been removed subsequently using a **Partial** uninstall.

5. **(Optional) Click the `Details` button on the last screen of the wizard to check which packages have been removed, and then exit the wizard.**

Upon exiting, the working directory will have been deleted by the uninstallation process. You will have to change to an absolute directory name. For example:

```
# cd /
```

6. **(Optional) View the uninstallation logs in the `/var/sadm/install/logs` directory.**

▼ To Remove the Software Using the `pkgrm` Command

1. Find out which Java DMK packages are installed on your machine, for example, by typing the following command:

```
$ /bin/pkginfo | grep DMK
application SUNWjddc      Java DMK online documentation
application SUNWjdex     Java DMK examples
application SUNWjdrt     Java DMK runtime
application SUNWjdk      Java DMK tools
```

The packages which you can remove are displayed. The `SUNWjsnmp` package is not listed, as it is not specific to the Java DMK.



Caution – Do not remove the `SUNWjsnmp` package, if other packages that are not part of the Java DMK are dependent on it. See “`SUNWjsnmp` Package” on page 10.

2. Become root user.
3. Use the `pkgrm` command with the names of the installed packages to remove them.

For example, if you have a full installation of the Java DMK, type the following command:

```
#!/usr/sbin/pkgrm SUNWjdk SUNWjdrt SUNWjdex SUNWjddc
```

Working Directories

The installation of the Java DMK creates directories that certain component services use by default. Table 1-3 shows the name and description of these working directories:

TABLE 1-3 Working Directories

Directory	Description
<code>installDir/SUNWjdk/jdk5.0/etc/conf</code>	Contains the <code>template.acl</code> file and is the default location for the <code>jdk.acl</code> file for defining access rights in SNMP agents
<code>installDir/SUNWjdk/jdk5.0/etc/mibgen</code>	Contains the <code>mib_core.txt</code> file that is always used by default when “compiling” MIBs with the <code>mibgen</code> tool

TABLE 1-3 Working Directories (Continued)

Directory	Description
<i>installDir/SUNWjdmk/jdmk5.0/tmp</i>	A storage area for native libraries loaded by the m-let service

If you install the Java DMK in the default directory on a Solaris platform, the *installDir* will be */opt*. In this case, you will need to be root to write to the *jdmk.ac1* file in the *etc/conf* directory.

Setting the PATH and CLASSPATH Environment Variables

The CLASSPATH environment variable tells the Java virtual machine where to find the class libraries, such as the *jdmkttk.jar* file.

The PATH environment variable specifies the location of executable files, for example, the *proxygen* tool and the *mibgen* compiler.

The tools provided in the Java DMK and the programs that you compile and run rely on the values in these variables. Modify these environment variables as shown in Table 1-4.

TABLE 1-4 Environment Variables for the Solaris Operating Environment

Environment Variable	Add
CLASSPATH	<i>installDir/SUNWjdmk/jdmk5.0/lib/jdmkrt.jar</i> : <i>installDir/SUNWjdmk/jdmk5.0/lib/jdmkttk.jar</i>
PATH	<i>installDir/SUNWjdmk/jdmk5.0/bin</i>

Installation on a Windows 2000 Platform

This chapter describes how to install, remove, and reinstall the Java Dynamic Management Kit (DMK) 5.0 on a Windows 2000 platform. The procedures are described in the following sections:

- “Planning Your Installation” on page 21
- “Installing the Software on a Windows 2000 Platform” on page 24
- “Removing the Software” on page 25
- “Setting the PATH and CLASSPATH Environment Variables” on page 26

Planning Your Installation

Decide where to install the software components supplied with the Java DMK 5.0, and ensure your machines meet the installation requirements.

Upgrading From a Previous Version

If you are upgrading your Java DMK from versions 3.0, 3.2, 4.0, 4.1 or 4.2 to version 5.0, you are not required to uninstall the earlier version. Several versions of the product can coexist on the same system, since each version has its own version number in its installation path.

However, if you are reinstalling version 5.0 of the Java DMK, you should first remove your previous installation. This procedure is described in “Removing the Software” on page 25. You can then reinstall the current version.

Software Components

The Java DMK 5.0 is composed of software components that can be installed individually. They are described in Table 2-1. You can install only certain components on a system, according to your requirements.

TABLE 2-1 Software and Documentation Components

Component Name	Description
Runtime	Contains Java dynamic management runtime classes (<code>jdmkrt.jar</code>), with the exception of the SNMP manager API classes. Install this component on all machines where you intend to develop or run Java dynamic management agents and manager applications.
Toolkit	Contains the Java DMK tools, <code>proxygen</code> and <code>mibgen</code> , (<code>jdmktk.jar</code>). Install this component on all machines where you intend to develop Java dynamic management agents and manager applications.
Examples	Contains the Java source code files of the supplied examples. Installing this component is optional.
Documentation	Contains all documentation for the Java DMK in HTML format. Installing this component is optional.
Java SNMP API	Contains the SNMP manager API classes (<code>jsnmpapi.jar</code>). Install this component on all machines where you intend to develop or run Java dynamic management agents and manager applications.

Deciding Which Components to Install

You can install only certain software components on a machine, according to your requirements. To be able to run Java dynamic management agents and manager applications on a machine, you must install the runtime component (`jdmkrt.jar`) and the Java SNMP API component (`jsnmpapi.jar`). If, in addition, you want to be able to develop Java dynamic management agents and manager applications on a machine, you must also install the toolkit component: `jdmktk.jar`. The examples component and the documentation component are both optional, and are designed to enhance your understanding of the Java DMK.

Installation Requirements

Before you install the Java DMK 5.0 software, make sure that your system meets the minimum hardware and software requirements, and that you have sufficient disk space available. These installation requirements are described in the sections that follow.

Hardware Platform

The Java DMK 5.0 runs on Intel platforms and requires a minimum of 64 Mbytes of RAM.

Software Requirements

The Java DMK 5.0 requires the following software:

- Windows 2000 operating environment
- Java 2 SDK (JDK 1.4)

Disk Space

Table 2-2 shows the disk space required by the software components, and the folder where each component is installed by default.

TABLE 2-2 Disk Space and Default Installation Folders

Description	Disk Space (Mbytes)	Default Installation Folder
Runtime classes	0.8	C:\Program Files
Toolkit classes	0.4	C:\Program Files
Examples	1.8	C:\Program Files
Online documentation	18.0	C:\Program Files
SNMP manager API classes	0.4	C:\Program Files
Total	21.4	

The installation software computes the size of the components you want to install and warns you if your disk is full.

By default, the files are installed under the C:\Program Files folder, but you can specify a different path by choosing a **Custom** installation in Step 5 of the procedure “To Install the Software Using the Installation Wizard” on page 24.

Installing the Software on a Windows 2000 Platform

These instructions assume that you have experience installing software products on systems that are running a Windows 2000 environment. The instructions are for installing the software from a local CD-ROM drive.

The installation process uses the Solaris Web Start Wizards software to simplify and speed up the installation of software on a Java technology-enabled platform. It is a Java class that runs in the Java runtime environment, version 1.2.2 or later. Make sure that the `java` command is in your path before you run the installation script.

If you cannot launch the installation wizard, or if you want to install the software in several folders that are different from the default locations listed in Table 2-2, you can install the software manually, as described in Chapter 3.

▼ To Install the Software Using the Installation Wizard

If you are reinstalling version 5.0 of the Java DMK, you must first remove the existing Java DMK software. See “Removing the Software” on page 25.

1. **Insert the product CD-ROM into the CD-ROM drive.**
2. **Click the `Start` button on the taskbar, then choose `Programs | Accessories | Windows Explorer`.**
3. **Double-click the CD-ROM icon to display the contents of the CD-ROM and open the folder named `windows2000`.**
4. **Double-click the `setup.bat` file name or icon.**

This launches the interactive installer window from which you complete the installation. If you encounter problems while using the `setup.bat` scripts or while running the installation wizard, see “Alternative Installation Procedure” on page 25 for a workaround.

5. **Follow the instructions of the installation wizard to complete the installation.**

If you choose the **Typical** installation, all the software components will be installed in the default location: `C:\Program Files`.

If you choose the **Custom** installation, you can select the software components you want to install and specify a different location. Click the `Browse` button and then choose the path of the new installation folder.

The installation wizard automatically creates an uninstallation wizard that can remove the exact configuration that is installed. See “Removing the Software” on page 25 for details.

Note – The installation wizard does not update the Windows 2000 registry with information about the installed software components, it only unpacks and moves files to your file system.

6. (Optional) View or copy the documents in the docs folder at the root of the CD-ROM.

These printable documents are not included in the installed software components for space considerations. See *Getting Started with the Java Dynamic Management Kit 5.0* for a description of the Java DMK 5.0 documentation set.

7. When you have finished, eject the CD-ROM.

Alternative Installation Procedure

If you cannot launch the installation wizard, you will have to copy the product files manually from the CD-ROM to your disk. To do this, follow the procedure described in Chapter 3.

Reinstalling the Software

If you are reinstalling version 5.0 of the Java DMK, you must first remove the existing software. See “Removing the Software” on page 25. Once you have removed the software, you can follow the steps in “To Install the Software Using the Installation Wizard” on page 24 or “To Install the Software From the ZIP File” on page 29 to reinstall the Java DMK 5.0 software.

Removing the Software

If you are reinstalling version 5.0 of the Java DMK, you must first remove the existing Java DMK software. If you installed the software with the installation wizard, there is a Java class file that you can launch to lead you through the uninstallation procedure. Make sure that your classpath is set up properly for your version of the `java` command.

Note – Because the Java DMK software components are not listed in the Windows 2000 registry, you must go through the uninstaller to remove the software. If you installed the software from the ZIP file, you must delete the files of the installation manually.

▼ To Remove the Software Using the Uninstallation Wizard

1. Open a command prompt window and go to the location of the installed software.
2. Launch the uninstallation wizard class.

```
C:\>cd "installDir\SUNWjdk\jdk5.0"  
C:\>java uninstall_jdk50_windows2000
```

You might need to add the current directory (.) to your classpath to run the wizard class.

3. Choose the type of uninstallation you want to perform and follow the instructions.
A **Full** uninstall removes all of the Java DMK software that is installed.
A **Partial** uninstall lets you choose the components you want to remove. You can launch this wizard again to remove the other components at a later date. Note that each time you launch the uninstallation wizard, it lists all the software components that were installed using the installation wizard, even if some of these have been removed subsequently using a **Partial** uninstall.
4. Click the **Details** button on the last screen of the wizard to confirm that the uninstallation is complete, then exit the wizard.

Note – The uninstallation wizard can remove only software components that were added during the previous installation using the installation wizard. If components remain after you run the uninstallation wizard, you must delete the files manually.

Setting the PATH and CLASSPATH Environment Variables

The **CLASSPATH** environment variable tells the Java virtual machine where to find the class libraries, such as the `jdkmrt.jar` file.

The `PATH` environment variable specifies the location of executable files, for example, the `proxygen` tool and the `mibgen` compiler.

The tools provided in the Java DMK and the programs that you compile and run rely on the values in these variables. Modify these environment variables according to your Java version, as shown in Table 2-3.

TABLE 2-3 Environment Variables for the Windows 2000 Environment

Environment Variable	Add
<code>CLASSPATH</code>	<i>installDir\SUNWjdkm\jdkm5.0\lib\jdkmrt.jar;</i> <i>installDir\SUNWjdkm\jdkm5.0\lib\jdkmktk.jar</i>
<code>PATH</code>	<i>installDir\SUNWjdkm\jdkm5.0\bin</i>

Installation on Other Platforms

This chapter describes how to install and remove the Java Dynamic Management Kit (DMK) 5.0 software on platforms other than those described in Chapter 1 and Chapter 2. The procedure described in “To Install the Software From the ZIP File” on page 29 can also be used if you encounter difficulties in using the installation wizard.

This chapter comprises the following sections:

- “Installing the Software From the ZIP File” on page 29
- “Removing the Software” on page 30

Installing the Software From the ZIP File

If you are installing the Java DMK software on a platform other than a Solaris platform or a Windows 2000 platform, you extract the software from the ZIP file using the following procedure.

▼ To Install the Software From the ZIP File

1. **Open the `other` folder at the root of the CD-ROM**
2. **Extract the contents of the `jdkmk50.zip` file to the `installDir` folder of your choice.**

This file contains the whole file hierarchy of a full installation. See “Software Components” on page 22 to decide which Java DMK components you require. Either delete the branches of this hierarchy that you do not need, or use an archive utility to extract only the files you need.

Editing the proxygen and mibgen Scripts

Scripts are provided for launching `proxygen` and `mibgen` in the `bin` directories of the archive. Before you use these scripts, you must edit those which correspond to the environment you are using:

- For Microsoft Windows platforms, edit the `mibgen.bat` and `proxygen.bat` files.
- For all platforms except Microsoft Windows platforms, notably those using UNIX[®] systems, edit the `mibgen.sh` and `proxygen.sh` files.

Edit the appropriate files by setting the `JDMK_HOME` variable to your installation directory, that is, the directory containing the `lib` directory.

Note – It is also possible to use the `proxygen` and `mibgen` tools by adding the `jdkmktk.jar` file to your class path and then launching these tools from their corresponding Java class: `com.sun.jdmk.tools.ProxyGen` and `com.sun.jdmk.tools.MibGen`.

Removing the Software

To remove the files installed as described in “To Install the Software From the ZIP File” on page 29, you must delete them manually.

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