

# Oracle® Database

Quick Installation Guide

11g Release 1 (11.1) for Microsoft Windows (32-Bit)

**B32301-06**

August 2010

---

This guide describes how to quickly install the Oracle Database product on 32-bit Windows systems. It includes information about the following:

1. [Review Information About this Guide](#)
2. [Log On to the System with Administrator Privileges](#)
3. [Check the Hardware Requirements](#)
4. [Check the Software Requirements](#)
5. [Web Browser Support](#)
6. [Install the Oracle Database Software](#)
7. [Installing Oracle Database Examples](#)
8. [What to Do Next?](#)
9. [Additional Information](#)
10. [Documentation Accessibility](#)

## 1 Review Information About this Guide

This guide describes how to install Oracle Database using the default installation options into a new Oracle home.

### Tasks Described in this Guide

The procedures in this guide describe how to:

- Configure your system to support Oracle Database.
- Install the Oracle Database software on a local file system.
- Configure a general-purpose Oracle database that uses the local file system for database file storage.

### Results of a Successful Installation

After you successfully install Oracle Database:

- The database that you created and the default Oracle Net listener process are running on the system.
- Oracle Enterprise Manager Database Control is running and can be accessed using a Web browser.
- A single-node version of the Oracle Cluster Synchronization Services daemon is running and is configured to start automatically when your system boots.

## Tasks Not Described in this Guide

This guide covers the Basic Installation scenario and does *not* describe how to complete the following tasks:

- Installing the software on a system that has an existing Oracle software installation.
- Installing Oracle Clusterware and Oracle Real Application Clusters.
- Installing Automatic Storage Management.
- Cloning an Oracle home.
- Enabling Enterprise Manager e-mail notifications or automated backups.
- Using alternative storage options such as Automatic Storage Management.

## Where to Get Additional Installation Information

For more detailed information about installing Oracle Database components, including information about the tasks not described in this guide, see one of the following guides:

- If you are installing the software on a single system or if you want to install Automatic Storage Management, see *Oracle Database Installation Guide for Microsoft Windows*.
- If you are installing Oracle Real Application Clusters, see *Oracle Clusterware Installation Guide for Microsoft Windows* and *Oracle Real Application Clusters Installation Guide for Microsoft Windows*. These guides describe how to install Oracle Clusterware and Oracle Real Application Clusters. Oracle Clusterware is a prerequisite for Oracle Real Application Clusters installations.

All these guides are available on the product media. To access these guides, use a Web browser to open the `welcome.htm` file located in the top-level directory of the installation media, and then select the **Documentation** tab.

For information about installing Oracle Database examples, see *Oracle Database Examples Installation Guide*.

## 2 Log On to the System with Administrator Privileges

Log on as a member of the Administrators group to the computer on which to install Oracle components. If you are installing on a Primary Domain Controller (PDC) or a Backup Domain Controller (BDC), log on as a member of the Domain Administrators group.

## 3 Check the Hardware Requirements

The following hardware components are required for installing Oracle Database:

**Table 1 Hardware Requirements**

Requirement	Minimum Value
Physical memory (RAM)	1 GB minimum
Virtual memory	Double the amount of RAM
Disk space	Total: 4.76 GB

**Table 1 (Cont.) Hardware Requirements**

Requirement	Minimum Value
Video adapter	256 colors
Processor	550 MHz minimum (On Windows Vista, 800 MHz minimum) See <a href="#">Table 2</a> for details.

### 3.1 Hard Disk Space Requirements

[Table 2](#) lists the space requirements on NTFS. The starter database requires 1.55 GB of disk space. The figures in this table include the starter database. FAT32 space requirements are slightly higher.

**Table 2 Disk Space Requirements on NTFS**

Installation Type	TEMP Space	C:\Program Files\Oracle	Oracle Home	Datafiles *	Total
Basic Installation	200 MB	3.1 MB	2.96 GB	1.60 GB	4.76 GB
Advanced Installation: All Editions	200 MB	3.1 MB	2.96 GB **	1.60 GB **	4.76 GB **

\* Refers to the contents of the `admin`, `cfgtoollogs`, `flash_recovery_area`, and `oradata` directories in the `ORACLE_BASE` directory.

\*\* This size can be higher depending on the installation options selected, such as languages or additional components. If you choose to install Oracle Database with automated backups enabled, include at least 2 GB extra for data file disk space.

**See Also:** "About NTFS File System and Windows Registry Permissions" in *Oracle Database Platform Guide for Microsoft Windows*

To ensure that the system meets these requirements, follow these steps:

1. Determine the physical RAM size. For example, on a Windows 2003 computer, open **System** in the Windows Control Panel and select the **General** tab. If the size of the physical RAM installed in the system is less than the required size, then you must install more memory before continuing.
2. Determine the size of the configured virtual memory (also known as paging file size). For example, on a Windows 2003 computer, open **System**, select the **Advanced** tab, and click **Settings** in the Performance section. Then select the **Advanced** tab. The virtual memory is listed in the Virtual Memory section.

If necessary, see your operating system documentation for information about how to configure additional virtual memory.

3. Determine the amount of free disk space on the system. For example, on a Windows 2003 computer, open **My Computer**, right-click the drive where the Oracle software is to be installed, and choose **Properties**.
4. Determine the amount of disk space available in the `temp` directory. This is equivalent to the total amount of free disk space, minus what will be needed for the Oracle software to be installed.

If there is less than 125 MB of disk space available in the temp directory, then first delete all unnecessary files. If the temp disk space is still less than 125 MB, then set the TEMP or TMP environment variable to point to a different hard drive. For example, on a Windows 2003 computer, open **System**, select the **Advanced** tab, and click **Environment Variables**.

## 4 Check the Software Requirements

Table 3 lists the software requirements for Oracle Database.

**Table 3 Software Requirements**

Requirement	Value
System Architecture	<p>Processor: Intel (x86), AMD64, and Intel EM64T</p> <p><b>Note:</b> Oracle provides 32-bit (x86), 64-bit (Itanium), and 64-bit (x64) versions of Oracle Database for Windows. The 32-bit database version, which this installation guide describes, runs on the 32-bit version of Windows on either x86 or x64 hardware. Oracle provides limited certification for 32-bit Oracle Database on 64-bit Windows (x64). For additional information, visit My Oracle Support (formerly OracleMetaLink) at:  <a href="https://support.oracle.com">https://support.oracle.com</a></p>
Operating System	<p>Oracle Database for 32-bit Windows is supported on the following operating systems:</p> <ul style="list-style-type: none"> <li>▪ Windows 2000 with Service Pack 1 or later. All editions, including Terminal Services and Microsoft Windows 2000 MultiLanguage Edition (MLE), are supported.</li> <li>▪ Windows Server 2003 - all editions</li> <li>▪ Windows Server 2003 R2 - all editions</li> <li>▪ Windows XP Professional</li> <li>▪ Windows Vista - Business, Enterprise, and Ultimate editions</li> </ul> <p>Windows NT is not supported.</p> <p>Windows Multilingual User Interface Pack is supported on Windows Server 2003, Windows Server 2003 R2, Windows XP Professional, and Windows Vista.</p>

**Table 3 (Cont.) Software Requirements**

Requirement	Value
Compiler	<p>Pro*Cobol has been tested and certified with Net Express 5.0.</p> <p>Object Oriented COBOL (OOCOBOL) specifications are not supported.</p> <p><b>Note:</b> This version of Pro*Cobol has also been tested and certified on Windows x64 with Net Express 5.0.</p> <p>The following components are supported with the Microsoft Visual C++ .NET 2002 7.0 and Microsoft Visual C++ .NET 2003 7.1 compilers:</p> <ul style="list-style-type: none"> <li>■ Oracle Call Interface</li> <li>■ External callouts</li> <li>■ PL/SQL native compilation</li> <li>■ Pro*C/C++</li> <li>■ XDK</li> </ul> <p>Oracle C++ Call Interface is supported with</p> <ul style="list-style-type: none"> <li>■ Microsoft Visual C++ .NET 2003 7.1</li> <li>■ Microsoft Visual C++ .NET 2005 8.0 - OCCI libraries are installed under <code>ORACLE_BASE\ORACLE_HOME\oci\lib\msvc\vc8</code>. When developing OCCI applications with MSVC++ 8.0, ensure that the OCCI libraries are correctly selected from this directory for linking and executing.</li> </ul>
Network Protocol	<p>The Oracle Net foundation layer uses Oracle protocol support to communicate with the following industry-standard network protocols:</p> <ul style="list-style-type: none"> <li>■ TCP/IP</li> <li>■ TCP/IP with SSL</li> <li>■ Named Pipes</li> </ul>
Oracle Database Client for Windows-32 bit	<ul style="list-style-type: none"> <li>■ If you plan to connect to Oracle Database 11g Release 1 (11.1) from a release of Oracle Database Client that is earlier than 11g Release 1 (11.1), the following conditions apply: <p>Oracle Database Client is version 9.2.0.4 or higher. See Note 207303.1 on My Oracle Support (formerly OracleMetaLink) for more details and up to date information.</p> </li> <li>■ If the earlier Oracle Database Client is running on the same computer as Oracle Database 11g Release 1 (11.1), a bequeath connection cannot be used.</li> </ul> <p>Oracle recommends upgrading Oracle Database Client to the latest patchset (9.2.0.8, 10.2.0.5, or later). You can download the patchset from the Patches and Updates section of My Oracle Support (formerly OracleMetaLink) at:</p> <p><a href="https://support.oracle.com">https://support.oracle.com</a></p>

## 5 Web Browser Support

The following Web browsers are supported for Oracle Enterprise Manager Database Control:

- Netscape Navigator 7.2
- Netscape Navigator 8.1

- Mozilla version 1.7
- Microsoft Internet Explorer 6.0 SP2
- Microsoft Internet Explorer 7.0 or later (Microsoft Internet Explorer 7.0 on Windows Vista)
- Firefox 1.0.4
- Firefox 1.5
- Firefox 2.0

## 6 Install the Oracle Database Software

To install the Oracle Database software:

---

---

**Note:** If you run Oracle Universal Installer during the time that Windows Scheduler jobs are running, then you may encounter unexplained installation problems if your Windows Scheduler job is performing cleanup, and temporary files are deleted before the installation is finished. Oracle recommends that you complete installation before the Windows Scheduler jobs are run, or disable Windows Scheduler jobs that perform cleanup of temporary files until after the installation is completed.

---

---

1. If you are installing Oracle Database on a multihomed computer or a computer that uses multiple aliases, use the **System** in the Control Panel to create the `ORACLE_HOSTNAME` system environment variable. Set this variable to point to the host name of the computer on which you are installing Oracle Database.
2. Insert Oracle Database installation media and navigate to the `database` directory. Alternatively, navigate to the directory where you downloaded or copied the installation files.

Use the same installation media to install Oracle Database on all supported Windows platforms.

3. Double-click `setup.exe` to start Oracle Universal Installer.
4. On the Welcome screen, the **Basic Installation** is selected by default. If you want to perform an advanced installation, then select **Advanced Installation**, and then answer the prompts as needed.

**See Also:** Chapter 1 in *Oracle Database Installation Guide for Microsoft Windows* for more information on the **Basic** and **Advanced** installation methods

The subsequent windows that appear, which are listed in [Table 4](#) on page 8, depend on the installation method you have chosen. The order in which the windows appear depends on the options you select.

5. Follow these guidelines to complete the installation:
  - Do not install Oracle Database 11g Release 1 (11.1) software into an existing Oracle home.

- Follow the instructions displayed in the Oracle Universal Installer screens. If you need additional information, click **Help**.
  - When prompted for a password, follow these guidelines:
    - Make the password between 8 and 30 characters long.
    - Use the database character set for the password's characters, which can include the underscore (\_), dollar (\$), and pound sign (#) characters.
    - Do not start passwords with a numeral.
    - Do not use a user name for a password.
    - Do not use Oracle reserved words for the password.
    - Do not use `change_on_install` for the `SYS` account password.
    - Do not use `manager` for the `SYSTEM` account password.
    - Do not use `sysman` for the `SYSMAN` account password.
    - Do not use `db snmp` for the `DBSNMP` account password.
- If you choose to use the same password for all the accounts, do not use `change_on_install`, `manager`, `sysman`, or `db snmp` as a password.
- Have the password include at least 1 alphabetic, 1 numeric, and 1 punctuation mark character.
- Do not use simple or obvious words, such as `welcome`, `account`, `database`, and `user` for the password.

---

---

**Note:** You must remember the passwords that you specify.

---

---

- Do not modify the Java Runtime Environment (JRE) except by using a patch provided by Oracle Support Services. Oracle Universal Installer automatically installs the Oracle-supplied version of the JRE. This version is required to run Oracle Universal Installer and several Oracle assistants.
  - If you encounter errors while installing or linking the software, see Appendix F in *Oracle Database Installation Guide for Microsoft Windows* for information about troubleshooting.
  - If you chose an installation type that runs Database Configuration Assistant and Oracle Net Configuration Assistant in interactive mode, you must provide detailed information about configuring your database and network.
- If you need assistance when using the Database Configuration Assistant or Oracle Net Configuration Assistant in interactive mode, click **Help** on any screen.

---

---

**Note:** If you chose a default installation, Database Configuration Assistant and Oracle Net Configuration Assistant run non-interactively.

---

---

6. When the configuration tools finish, click **Exit**, then click **Yes** to exit from Oracle Universal Installer.

7. When Oracle Enterprise Manager Database Control opens in a Web browser, enter the user name and password you created during the installation.

You can log in as *SYS*, *SYSTEM*, or *SYSMAN*. If you log in as *SYS*, then you must connect AS *SYSDBA*. Enter the password you specified for the account during installation.

8. Optionally, delete the *OraInstalldate\_time* directory if you want to remove the temporary files that were created during the installation process. The *OraInstalldate\_time* directory holds about 45 MB of files. This directory is created in the location set by the *TEMP* environment variable setting.

Restarting your computer also removes the *OraInstalldate\_time* directory.

9. See Chapter 4 in *Oracle Database Installation Guide for Microsoft Windows* for information about postinstallation tasks that you must complete after you have installed Oracle Database.

**Table 4 Oracle Universal Installer Screens**

Screen	Recommended Action
Select a Product to Install	This screen enables you to install any one for the following products: <ul style="list-style-type: none"> <li>■ Oracle Database 11g</li> <li>■ Oracle Client</li> <li>■ Oracle Clusterware</li> </ul> Click <b>Next</b> .
Select Installation Method	Select one of the following, then click <b>Next</b> : <ul style="list-style-type: none"> <li>■ <b>Basic Installation:</b> This installation method, selected by default, lets you quickly install Oracle Database using minimal input. It installs the software and optionally creates a general-purpose database using the information that you specify on this screen.</li> <li>■ <b>Advanced Installation:</b> Lets you perform more complex installations, such as creating individual passwords for different accounts, creating specific types of starter databases (for example, for transaction processing or data warehouse systems), using different language groups, specifying e-mail notifications, and so on.</li> </ul>
Select Installation Type	Select <b>Enterprise Edition, Standard Edition, Personal Edition, or Custom</b> . Click <b>Next</b> .
Specify Home Details	The Oracle base path appears by default. You can change the path based on your requirement.  In the <b>Software Location</b> section, accept the default values or enter the Oracle home name and directory path in which you want to install Oracle components. The directory path should not contain spaces.  Click <b>Next</b> .
Available Product Components	If you selected Custom for the Installation Type, this screen is displayed. Select the components to be installed from the list and click <b>Next</b> . To learn more about each component, place the mouse over the component name.
Product-specific Prerequisite Checks	This screen checks that the system meets the minimum requirements for the installation. Correct any errors that Oracle Universal Installer may have found, and then click <b>Next</b> .



**Table 4 (Cont.) Oracle Universal Installer Screens**

Screen	Recommended Action
Upgrade an Existing Database	<p>This screen is displayed if you have a previous updatable version of Oracle Database or Automatic Storage Management installed. For in-place database installations where Automatic Storage Management is running, Automatic Storage Management is upgraded automatically.</p> <p>Click <b>Yes</b> if you want to upgrade or <b>No</b> if not. If you click <b>Yes</b>, the Summary screen is displayed.</p> <p>For more information about upgrades, see <i>Oracle Database Upgrade Guide</i>.</p>
Select Configuration Option	<p>Select one of the following:</p> <ul style="list-style-type: none"><li>■ Create a database: Select this option if you are creating a database of the following types: General purpose, Transaction processing, and Data warehousing. The Advanced option lets you perform a custom installation.</li><li>■ Configure Automatic Storage Management: Select this option to create an Automatic Storage Management instance only. To create an Automatic Storage Management instance, you must provide an Automatic Storage Management SYS Password. After you provide this password, Oracle Universal Installer lets you create an Automatic Storage Management disk group. After you complete this Oracle Universal Installer session, you can run it again to install and configure one or more Oracle databases that will use Automatic Storage Management.</li><li>■ Install database Software only: Select this option to install the database software only, but not create a database or configure Automatic Storage Management.</li></ul>

**Table 4 (Cont.) Oracle Universal Installer Screens**

Screen	Recommended Action
Select Automatic Storage Management Option	If you selected Configure Automatic Storage Management from the Select Configuration Option screen, and if you have Oracle Enterprise Manager 11g Grid Control installed, then this screen is displayed. Select <b>Yes</b> or <b>No</b> , depending on the requirement to use Grid Control to manage Automatic Storage Management. If you select <b>Yes</b> , then select from the list of Enterprise Management agents to use.
Configure Automatic Storage Management	<p>If you selected Configure Automatic Storage Management from the Select Configuration Option screen, this screen is displayed. Enter the disk group name. The disk group list shows both candidate and member disks; you can click <b>Show Candidates</b> or <b>Show All</b> to filter their display. Then, select the redundancy level and member disks for the disk group.</p> <p>For Redundancy Level, choose one of the following options. If you do not choose a redundancy level, the disk group defaults to normal redundancy.</p> <ul style="list-style-type: none"> <li>■ High: With this option, the contents of the disk group are three-way mirrored by default. To create a disk group with high redundancy, you must specify at least three failure groups (a minimum of three devices).</li> <li>■ Normal: In a normal redundancy level, by default, the data files of the disk group are two-way mirrored and the control files are three-way mirrored. You can choose to create certain files that are three-way mirrored or not mirrored. To create a disk group with normal redundancy, you must specify at least two failure groups (a minimum of two devices) for two-way mirroring.</li> <li>■ External: If you select this option, Automatic Storage Management does not mirror the contents of the disk group. Choose this redundancy level when the disk group contains devices, such as RAID devices, that provide their own data protection; or the use of the database does not require uninterrupted access to data, for example, in a development environment where you have a suitable backup strategy.</li> </ul>
Select Database Configuration	<p>Select the database configuration that best meets the requirements: General Purpose / Transaction Processing, Data Warehouse, or Advanced.</p> <p>See the online Help provided by either Oracle Universal Installer or Oracle Database Configuration Assistant for a description of these preconfigured database types.</p> <p>Click <b>Next</b>.</p>

## 7 Installing Oracle Database Examples

If you plan to use the following products or features, then download and install the products from the Oracle Database Examples media:

- Oracle JDBC Development Drivers
- Oracle Database Examples
- Oracle Context Companion
- Various Oracle product demonstrations

For information about installing software and various Oracle product demonstrations from the Oracle Database Examples media, see *Oracle Database Examples Installation Guide*.

## 8 What to Do Next?

To become familiar with this release of Oracle Database, Oracle suggests that you complete the following tasks:

- Log in to Oracle Enterprise Manager Database Control using a Web browser.  
Oracle Enterprise Manager Database Control is a Web-based application that you can use to manage a single Oracle database. The default URL for Database Control is:

```
http://host.domain:port/em/
```

Log in with the user name `SYSMAN`. Use the password that you specified for this user during the Oracle Database installation.

- See Chapter 4 of *Oracle Database Installation Guide for Microsoft Windows* for information about required and optional postinstallation tasks, depending on the components that you want to use.
- Review Chapter 5 of *Oracle Database Installation Guide for Microsoft Windows* for information about how to get started using Oracle Database.
- Read *Oracle Database 2 Day DBA* guide, to learn more about using Oracle Enterprise Manager Database Control to administer a database.

This guide, designed for new Oracle DBAs, describes how to use Oracle Enterprise Manager Database Control to manage all aspects of an Oracle database installation. It also provides information about how to enable e-mail notifications and automated backups, which you might not have configured during the installation.

## 9 Additional Information

This section contains information about the following:

- [Product Licenses](#)
- [Purchasing Licenses, Version Updates, and Documentation](#)
- [Contacting Oracle Support Services](#)
- [Locating Product Documentation](#)

### Product Licenses

You are welcome to install and evaluate the products included in this media pack for 30 days under the terms of the Trial License Agreement. However, you must purchase a program license if you want to continue using any product after the 30 day evaluation period. See the following section for information about purchasing program licenses.

**See Also:** *Oracle Database Licensing Information*

### Purchasing Licenses, Version Updates, and Documentation

You can purchase program licenses, updated versions of Oracle products, and printed versions of Oracle documentation from the Oracle Store Web site:

<http://oraclestore.oracle.com/>

### **Contacting Oracle Support Services**

If you have purchased Oracle Product Support, you can call Oracle Support Services for assistance 24 hours a day, seven days a week. For information about purchasing Oracle Product Support or contacting Oracle Support Services, go to the Oracle Support Services Web site:

<http://www.oracle.com/support/>

### **Locating Product Documentation**

Documentation for Oracle products is available in both HTML and Adobe portable document format (PDF) formats from several locations:

- On disks in the media pack:
  - Platform-specific documentation is available on the installation media. To access the documentation, see the `welcome.htm` file located in the top-level directory of the installation media.
  - Generic product documentation is available on the Oracle Documentation Library.
- From the Oracle Technology Network Web site:

<http://www.oracle.com/technology/documentation/>

To view PDF documents, download the free Adobe Acrobat Reader from the Adobe Web site, if necessary:

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

## **10 Documentation Accessibility**

Our goal is to make Oracle products, services, and supporting documentation accessible to all users, including users that are disabled. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at <http://www.oracle.com/accessibility/>.

### **Accessibility of Code Examples in Documentation**

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

### **Accessibility of Links to External Web Sites in Documentation**

This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

### **Access to Oracle Support**

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/support/contact.html> or visit

<http://www.oracle.com/accessibility/support.html> if you are hearing impaired.

---

Oracle Database Quick Installation Guide, 11g Release 1 (11.1) for Microsoft Windows (32-Bit)  
B32301-06

Copyright © 1996, 2010, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this software or related documentation is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications which may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

This software and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

