Oracle® Database

Release Notes

10*g* Release 2 (10.2) for hp OpenVMS

B25413-03

August 2007

This document contains important information that was not included in the platform-specific or product-specific documentation. Except where noted in the text, the information in these notes applies to Oracle Database 10*g* release 2 for hp OpenVMS Alpha and hp OpenVMS Itanium.

This document may be updated after it is released. To check for updates to this document and to view other Oracle documentation, see the Documentation section on the Oracle Technology Network (OTN) Web site:

`http://www.oracle.com/technology/documentation/`

These *Release Notes* are part of the following documentation set for the Oracle10*g* Database for hp OpenVMS:

- *Oracle Database Installation Guide 10g Release 2 for hp Open*VMS
- *Oracle Database Administrator's Reference 10g Release 2 for hp OpenVMS*

This document contains the following topics:

- Change in the Media Format
- Products Not Available in the Current Release
- Product Issues
- Other Product Issues
- Known Restrictions
- Documentation Accessibility

1 Change in the Media Format

Oracle Database 10*g* release 2 installation media is available on DVD and not on CD-ROM. hp Intergrity Servers include a DVD reader, while some AlphaServers do not have a DVD reader.

If the AlphaServer system includes a DVD drive, then you can install 10g release 2 directly from the DVD media.

If the AlphaServer system does not include a DVD drive and you cannot use the download option, then you can consider the following alternatives to install the software.

- Add a DVD drive to the AlphaServer system.

There are 3rd party USB and IDE DVD drives that can be added to the AlphaServer system to perform the installation. Check with the service provider regarding any service and support issues.

- If the AlphaServer on which you intend to install 10*g* release 2 is part of a cluster and some other node, such as an Integrity server, in the cluster has a DVD drive, you can serve the DVD drive to the AlphaServer system using MSCP.
- If the AlphaServer on which you intend to install 10*g* release 2 is not part of a cluster but another OpenVMS system on the network has a DVD drive you can copy the installation kit from the system with the DVD drive to the AlphaServer system using TCP/IP or DECnet.

2 Products Not Available in the Current Release

The following products are not available in this release. They may be available in future releases.

- Agent control utility (`agtctl`)
- Apache modules `mod-JServ`, `mod-perl`, and `mod-ssl`
- Automatic Storage Management

  Oracle Database 10*g* supports only the file system as a storage option for both the Oracle Database files as well as the Oracle Database recovery files.
- Connection Manager
- Cursor size utility (`cursize`)
- Database file size utility (`dbfsize`)
- Database File Migrate utility
- Disk striping simulator utility (stripe)
- DSGA (Direct SGA Attach) shared library
- EJB Beans

  This release does not support EJB on the server. If customers have iAS in middle tier, however, they can still use the database on OpenVMS in order to use EJB.
- File Map Utility (`fmputl`)
- File Map Utility Helper (`fmputlhp`)
- `genksms` utility
- Grid Control Support

  Oracle Database 10*g* release 2 (10.2) can be managed as a target by Grid Control 10.1.0.4. However, Oracle Database 10*g* release 2 is not supported by Grid Control 10.1.0.4 as a repository.
- Grid Scan Utility (grdcscan)
- Hewlett-Packard Fortran Compiler (F90)
  - For hp OpenVMS Alpha:

The Hewlett-Packard Fortran compiler (formerly the DIGITAL Fortran 90) is not supported.

To check which FORTRAN compiler is on the system, run the following command:

```
$ HELP FORTRAN
```

If the following message is displayed:

```
"Invokes the Hewlett-Packard Fortran (formerly the DIGITAL Fortran
90) compiler."
```

then the FORTRAN command should be qualified with `/OLD_F77`, as follows:

```
$ FORT/OLD_F77 foo.FOR
```

- For hp OpenVMS Itanium:

  The Fortran compiler on OpenVMS Itanium is only F90 compatible. Because Pro*FORTRAN assumes the F77 standard, Oracle cannot support issues when Pro*FORTRAN is used on modules that deviate from that standard. Oracle does not provide support or solution for any issues arising from this mismatch in the supported standard.

- HS Distributed External Procedure agent (`hsdepxa`)
- `hsodbc` agent
- HS OTS agent (`hsots`)
- INSO filters for Oracle Text
- *i*SQL* Plus
- iFS (Oracle Files) and Ultra Search

  Oracle Files and Ultra Search are not supported due to the lack of third-party software called INSO filter.

- JAccelerator
- Java API for ODM

  The Java API for Oracle Data mining is currently not supported on OpenVMS. This feature is a candidate for support in future releases. However, the PL/SQL data mining interface is supported.

- KGMGR utility (`kgmgr`)
- KGPMON utility (`kgpmon`)
- Log Scan Utility (Logscan)
- Logical Unit simulator utility (lun)
- Max memory test utility (`maxmem`)
- mkpatch Utility (mkpatch)
- Non-uniform memory access (NUMA)
- OCI Instant Client (`ez-install`)
- Optimal Flexible Architecture (OFA)

- Oracle Database Upgrade Assistant
- Oracle Enterprise Manager Database Control

  Note: You can access Oracle Enterprise Manager from an Oracle Client installation on Windows.

- Oracle Enterprise Manager Database Control Agent

  The Grid Control Agent is a separate release and will be provided for OpenVMS.
- Oracle HTML DB
- Oracle HTTP Server

  This release does not support the Oracle HTTP Server. However, the standalone Apache Server is supported.
- Oracle Input-Output Numbers Utility (Orion)
- Oracle Notification Server (ONS)
- Oracle OLAP
- Oracle OPatch
- Oracle Personalization
- Oracle Policy Manager
- Oracle Real Application Clusters Guard (formerly OPFS)
- Oracle Real Application Clusters Management Pack
- Oracle Secure Backup
- Oracle Standard Edition

  This feature is a candidate for future releases.
- Oracle Standard Edition Real Application Clusters

  This feature is not supported due to the lack of the Automatic Storage Management feature.
- Oracle Workflow Server
- osh utility (`osh`)
- OSM Discovery utility (`kfod`)
- OSStat statistics
- PL/SQL NCOMP
- PSP Loader utility (`loadpsp`)
- Raw Devices
- Real Application Clusters Interconnect Failover
- SBTTEST utility (`sttest`)
- Server Management
- SGA Dump utility (`dumpsga`)

- SGA Lock/Unlock utility (`oradism`)
- SGA Map utility (`mapsga`)
- Shared memory test utility (`tstshm`)
- SQL*Module for Ada
- SNMP
- Storage Access utility (storax)
- Summary Management
- Support for audit information to files
- Support for the `ORAMBX` utility
- System Resource Verifier utility (`sysresv`)
- TDS compiler (`tdscomp`)
- Transportable Databases
- Ultra Search/Context search
- Workspace Manager
- XA Functionality

  Oracle XA functionality is supported only within the Oracle Database acting in the role of Transaction Manager as well as Resource Manager.

  Oracle XA is the Oracle implementation of the X/Open Distributed Transaction Processing (DTP) XA interface. The XA standard specifies a bidirectional interface between resource managers (for example, Oracle) that provide access to shared resources within transactions, and between a transaction service that monitors and resolves transactions.

  Oracle Call Interface has XA functionality. When building a TP-monitor XA application, ensure that the TP-monitor libraries (that define the symbols `ax_reg` and `ax_unreg`) are placed in the link line before the Oracle client shared library. This link restriction is required only when using the XA dynamic registration (Oracle XA switch `xaoswd`).

  Oracle Database XA calls are defined in both the client shared library (`libclntsh.so`) and the client static library (`libclntst.olb`). These libraries are located in the `ORA_ROOT:[lib32]` directory.
- XDK for C++
- XML SQL Utility

3 Product Issues

The following section contains information about issues related to Oracle10*g* and associated products such as Oracle Database installation, configuration, and upgrade:

- Enabling Automated Backups
- Oracle interMedia
- CRS/RAC Known Issues
- Security for External Jobs

- Known Problems

3.1 Enabling Automated Backups

While installing Oracle Database, the Specify Backup and Recovery Options screen may appear truncated if the system does not have the required fonts installed. If the system has only fixed-width fonts, you may not be able to fully specify the required information in the Backup Job Credentials area of the screen. To work around this issue, do not select **Enable Automated Backups** on this screen. After the installation is complete, use Oracle Enterprise Manager 10*g* Grid Control to enable automated backups.

3.2 Oracle *inter*Media

A known issue exists with Oracle *inter*Media on Oracle Database 10*g*. The problem may arise when making calls to `mmtk_process()` or `mmtk_ext_process()` in `ordibody.sql`, yielding errors such as the following:

```
ERROR at line 1:
   ORA-29400: data cartridge error
   IMG-00714: internal error
   ORA-28579: network error during callback from external procedure agent
   ORA-06512: at "ORDSYS.ORDIMGEXTCODEC_PKG", line 164
   ORA-06512: at "ORDSYS.ORDIMGEXTCODEC_PKG", line 160
   ORA-06512: at line 1
   ORA-06512: at "ORDSYS.ORDIMG_PKG", line 525
   ORA-06512: at "ORDSYS.ORDIMAGE", line 59
   ORA-06512: at "TKIDIUSER.IMG_PROCESSCOPY", line 12
   ORA-06512: at "TKIDIUSER.TKIDIPCU_MAIN", line 57
   ORA-06512: at line 1
```

The problem is being tracked internally by Oracle bug number 4203210.

3.3 CRS/RAC Known Issues

The following are known Cluster Ready Services (CRS) issues in the current release:

- A CRS installation creates the following system level logicals:

  ```
  ORA_OCRCONFIG_LOC
  ORA_SCLS_SCR_PATH
  ORA_VAR_OPT
  ```

  If you plan to delete a CRS installation and create a non-CRS installation on the same node, ensure that you first deassign these logicals. Failure to do so will result in unintended errors or failures on assistants such as Oracle Net Configuration Assistant and Oracle Database Configuration Assistant.

- In a CRS installation, if Private Interconnect is selected in the Private Interconnect Configuration screen, then the Private Interconnect Configuration Assistant displays a failure message even though the actual operation completes successfully. Check the `oifcfg.log` file in the installation directory, and verify that the operation is completed successfully. If a failure is recorded in the log file, then you must run the `oifcfg` manually as indicated by Oracle Universal Installer. You can ignore the Private Interconnect Assistant failure if the operation completed successfully.

- While installing CRS, the device on which an installation is created is visible and accessible across all nodes of a cluster installation. For example, for a CRS installation created on disk A to run on nodes B and C, disk A is accessible on both nodes. For this reason, it is not necessary to copy a device across nodes. You may see error messages similar to the following in the `.ERR` files created under the log directory of orainventory:

  ```
  Error in copying file : rootadd.com
  oracle.ops.mgmt.cluster.ClusterException: PRKC-1004 : Problem in copying
  file to node
  ```

  These errors can be safely ignored.

- During a Custom installation of Oracle Real Application Clusters (RAC), Oracle Network Configuration Assistant (NETCA) is displayed at the end of the installation procedure even though the **Database Creation** option is not selected. You must run Virtual IP Configuration Assistant (VIPCA) before running NETCA for RAC. To do so, perform one of the following tasks:

  - Cancel the NETCA, and then run VIPCA, NETCA and Database Configuration Assistant (DBCA) in that order.
  - Run VIPCA from a separate window, then continue with NETCA that is displayed during custom installation, and then run DBCA.

- In the RAC database alert log files, messages similar to the following are displayed:

  ```
  SSKGXP_IP: Primary interface down
  operation
  location
  error error 0
  ```

  These messages are displayed if a private interconnect is not selected for RAC cluster communication, and the public IP address of the nodes are used for cluster communication. These messages can be ignored.

- While running `srvctl` or `crs_*` commands, you must enclose the arguments to these commands in double quotes. For example:

  ```
  SRVCTL START DATABASE "-d" "orcl"
  CRS_STAT "-p" "ora.ORCL.ORCL1.inst"
  ```

  Unlike Java, OpenVMS is case insensitive. Thus, the `SRVCTL` commands throws an error if the arguments are not passed with the right case. Moreover, the resource name you enter for `CRS_*` commands should match the name it is registered with in the Oracle Cluster Registry (OCR).

- While running Virtual IP Configuration Assistant (VIPCA), tracing information is displayed on the terminal from where VIPCA is run. You can ignore this information. To suppress the tracing information, you must define the following logical name before running VIPCA.

  ```
  $ DEFINE X$SRVM_TRACE X
  ```

3.4 Security for External Jobs

Refer to section 1.5.6 of *Administrator's Guide* to set the security for external jobs.

3.5 Non-Applicable Parameters

The following INIT.ORA parameters are not applicable to OpenVMS. Do not change their default values:

- BACKUP_TAPE_IO_SLAVES
- BWR_IO_SLAVES
- DISK_ASYNCH_IO
- TAPE_ASYNCH_IO
- DB_WRITER_PROCESSES

3.6 Known Problems

The following are known problems in the current release:

- Bug 4420104: Temporary files PERLPIPE*.COM created in login directory

  This has no impact on the functioning of the EMAgent. The temporary files can be manually deleted. Refer to the bug for more details and latest updates.

- Bug 4420248: Deadlock detection error during RAC instances startup by DBCA

  Refer to the bug for the solution and latest updates.

- Bug 4420463: Delays in Listener Start/Stop from Console

  This problem has not been observed in an Oracle installation, but has only been observed within the internal test QA area, which was set up with additional spooling of debugging information. However, the latency may reproduce in a customer environment, although very unlikely. To correct this, repeat the operation or perform the operation directly on the Server box where the listener is running. The modified status is automatically picked by the EM console within a few minutes of the direct operation.

- 5333539: ORA errors with additional information are incorrectly reported in 10*g* release 1.

  The ORA errors that contain additional errors, the additional information get translated into VMS errors.

- If you select 'Generate Database Create Scripts' when running the Database Configuration Assistant, then error messages similar to the following are displayed:

```
P2-0310: unable to open file
"DISK:[INSTALL_
TEST.DHAYTER.Home15]/sysman/admin/emdrep/sql/core/latest/admin/admin_
check_repos_user.sql"

SP2-0310: unable to open file
"DISK:[INSTALL_
TEST.DHAYTER.Home15]/sysman/admin/emdrep/sql/core/latest/admin/admin_
create_repos_user.sql"
```

  These errors can be safely ignored. It is not required to create a repository on OpenVMS, since the Database Console product is not supported.

- When performing an Oracle Database Custom installation, the following message may appear in the ORA_ ROOT:[ADMIN.*sid*.CREATE]JSERVER.LOG file:

  ```
  1 :ORA-06512: at "SYS.DBMS_JAVA", line 236
  1 :ORA-06512: at line 2
  1 :ORA-29558: JAccelerator (NCOMP) not installed. Refer to Install Guide
  for instructions.
  ```

  This message can be safely ignored as the JAccelerator component is not supported.

- During an Oracle Cluster Ready Services (CRS) installation from the CRS release media, the following error message is displayed when you click **Next** on the Cluster Configuration screen:

  ```
  Each node must have both private and public node name
  ```

  This error message is displayed even if you enter valid public and private node names. Click **Ok**, and then click **Next** to proceed.

- During a Database Enterprise installation, the installation log and `orainstall` error file displays the following errors:

  ```
  Performing fastcopy operations based on the information
  in the file 'oracle.server_EE_1.xml'.

  Performing fastcopy operations based on the information
  in the file 'setperms1.sh'.

  Exception occured during spawning:Child creation error:
  no such file or directory.
  ```

  These errors are can be safely ignored.

- While installing Oracle Database Client, do not select individual products in the Custom install option. Instead, select all the products from the menu.

- During an Oracle Database installation, the following messages may be displayed after the relinking phase.

  ```
  Redefining LNM$FILE_DEV...
  %RMS-E-FNF, file not found
  %RMS-F-ISI, invalid internal stream identifier (ISI) value
  ```

  These messages can be safely ignored.

- After running the `RUNINSTALLER` command, messages similar to the following may appear on the terminal session from which the command was started:

  ```
  Unknown host: _WSA38
      X Toolkit Warning: Cannot convert string
    "-*-Menu-Medium-R-Normal--*-120-*-*-P-*-ISO8859-1" to type FontStruct
  ```

  The Installer GUI should still appear and these messages can be ignored.

4 Other Product Issues

The following sections provide information about issues that affect other Oracle products:

- NetCA Help
- NetCA IPC Protocol
- Grid Features
- Installing Enterprise Security Manager
- Full-Text Searching with Oracle Text
- Oracle Net Configuration Files

4.1 NetCA Help

In the Oracle Net Configuration Assistant (NetCA) help, the link to the Select Oracle Context help topic is broken. The text for this topic is as follows:

Directory Usage Configuration, Select Oracle Context

Oracle administrative content has been found in more than one location in the directory. Oracle administrative content is stored in Oracle Context, a subtree in the directory that stores Oracle entries.

From the list, select or enter the location you want to use as the default Oracle Context location from which this computer will access Oracle entries, such as connect identifiers.

4.2 NetCA IPC Protocol

If you select the use of the IPC protocol for the network layer, NetCA cannot reliably determine whether or not the key value specified in the protocol is in use. To let the user specify whether or not the key is actually available, NetCA displays the following message:

```
The information provided for this listener is currently in
use by other software on this computer. You can proceed with
this configuration as it is, but it will not be possible to
start this listener until the conflict is resolved. Would
you like to continue with the configuration anyway?
```

When this message is displayed, you should check if there are other listener processes on the system. In addition, you should ensure that the key value you have specified is not already in use. If it is not in use, then proceed with the configuration session. If it is in use, then shut down the listener using the key. Alternatively, you can use the NetCA screen to specify that you do not want to continue with the installation and then select a key value that is not in use on the system.

4.3 Grid Features

Oracle Database New Features for Oracle Database 10*g* release 1 (10.1) lists two Grid features that are not available in this release of Oracle Database 10*g:* Resonance and Transparent Session Migration.

4.4 Installing Enterprise Security Manager

To install Enterprise Security Manager (ESM), install Oracle Client and choose the Administrator installation type.

4.5 Full-Text Searching with Oracle Text

For full-text searching with Oracle Text, you must create XML tables manually.

If you will need to use Oracle Text indexes for text-based `ora:contains` searches over a collection of XML elements, then do not use the XML schema annotation `storeVarrayAsTable="true"`. This annotation causes element collections to be persisted as rows in an Index Organized Table (IOT). Oracle Text does not support IOTs.

To be able to use Oracle Text to search the contents of element collections, set parameter `genTables="false"` during schema registration. Then create the necessary tables manually, without using the `ORGANIZATION INDEX OVERFLOW` clause. The tables will then be heap-organized instead of index-organized (IOT), as shown in the following example:

```
CREATE TABLE PurchaseOrder of XMLTYPE
  XMLSCHEMA http://localhost:8080/home/SCOTT/poSource/xsd/purchaseOrder.xsd
  ELEMENT "PurchaseOrder"
  VARRAY "XMLDATA"."ACTIONS"."ACTION"
    STORE AS TABLE ACTION_TABLE ((PRIMARY KEY
       (NESTED_TABLE_ID, ARRAY_INDEX)))
  VARRAY "XMLDATA"."LINEITEMS"."LINEITEM"
     STORE AS TABLE LINEITEM_TABLE ((PRIMARY KEY
       (NESTED_TABLE_ID, ARRAY_INDEX)));
```

4.6 Oracle Net Configuration Files

Files such as LISTENER.ORA, TNSNAMES.ORA, SQLNET.ORA, if configured manually, or copied and edited from earlier releases of Oracle Database may have record attributes that are incompatible with Oracle Database 10*g* release 2. The software cannot read such files. The required record format is `stream_lf` and the record attributes are `carriage_control` and `carriage_return`.

This may result in:

- Inability to start the listener
- Services not registered with the listener
- Inability to connect to other databases
- ORA-12154: TNS:could not resolve service name

Run the following command on each file affected:

```
$ DIR/FULL filename
```

An output similar to the following may be displayed:

```
Record format:      Variable length, maximum 255 bytes
Record attributes:  Carriage return carriage control
```

If the output includes the preceding entries, then run the following command:

```
$ CONVERT/FDL=SYS$INPUT filename filename
RECORD
 CARRIAGE_CONTROL CARRIAGE_RETURN
 FORMAT STREAM_LF
^Z
```

5 Known Restrictions

The following sections lists current restrictions for using Oracle Database 10*g*.

OpenVMS

OpenVMS always performs its I/O asynchronously. Several `INIT.ORA` parameters that mimic asynchronous behavior are not needed on OpenVMS. Refer to the *Oracle Database Administrator's Guide*, section 1.5.3, for the list of parameters that are not supported on OpenVMS.

Copying Oracle Executables

Moving executables from one OpenVMS machine to another is not recommended due to the usage of shared libraries and to the difficulty of ensuring valid referencing. Oracle recommends that you relink on the node where the executable will run.

Oracle Targets Paths in the Enterprise Manager Agent

Due to an inherent characteristic of the Perl language, wherein it attempts to translate any string with the '$' character in it as a Perl variable, it is strongly recommended that the paths used for Oracle targets, such as `oracle_home`, `listener_ora_dir` do not contain the '$' (dollar) character in them. This issue is tracked through Oracle bug 4299411.

Installation Time

During installation, when you click **Next** on the Installation Details screen, Oracle Universal Installer processes the information that you provided up to that point. This may take 10 minutes. During this time, it may appear that Oracle Universal Installer is not responding. There may be similar delays on other installer screens.

Database Configuration Assistant Runtime Considerations

When running the Database Configuration Assistant, the assistant performs background operations such as running databases. As a result, some of the assistant screens do not change for 10 minutes or more, depending on the system performance.

If the Password Management button on the last Database Configuration Assistant screen is not visible, then expand the Database Configuration Assistant window to use the Password Management feature.

Silent Installation

Silent Installation is not supported with this Oracle Database release on OpenVMS. Customers are free to attempt silent installation and many install scenarios should pose no problem, but if issues do arise, installation must be done interactively.

SCSNODE and TCP$INET_HOST

Installation of Oracle Database 10*g* will fail if the values of the `SYSGEN` parameter `SCSNODE` and the logical name `TCP$INET_HOST` are not the same. These must be configured to deliver same value, at least temporarily, for the install to succeed.

6 Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. 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.

TTY Access to Oracle Support Services

Oracle provides dedicated Text Telephone (TTY) access to Oracle Support Services within the United States of America 24 hours a day, seven days a week. For TTY support, call 800.446.2398.

Oracle Database Release Notes, 10*g* Release 2 (10.2) for hp OpenVMS
B25413-03

Copyright © 2006, 2007 Oracle. All rights reserved.

The Programs (which include both the software and documentation) contain proprietary information; they are provided under a license agreement containing restrictions on use and disclosure and are also protected by copyright, patent, and other intellectual and industrial property laws. Reverse engineering, disassembly, or decompilation of the Programs, except to the extent required to obtain interoperability with other independently created software or as specified by law, is prohibited.

The information contained in this document is subject to change without notice. If you find any problems in the documentation, please report them to us in writing. This document is not warranted to be error-free. Except as may be expressly permitted in your license agreement for these Programs, no part of these Programs may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose.

If the Programs are delivered to the United States Government or anyone licensing or using the Programs on behalf of the United States 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, use, duplication, disclosure, modification, and adaptation of the Programs, including documentation and technical data, shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement, and, to the extent applicable, the additional rights set forth in FAR 52.227-19, Commercial Computer Software—Restricted Rights (June 1987). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

The Programs are not intended for use in any nuclear, aviation, mass transit, medical, or other inherently dangerous applications. It shall be the licensee's responsibility to take all appropriate fail-safe, backup, redundancy and other measures to ensure the safe use of such applications if the Programs are used for such purposes, and we disclaim liability for any damages caused by such use of the Programs.

Oracle, JD Edwards, PeopleSoft, and Siebel are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

The Programs may provide links to Web sites and access to content, products, and services from third parties. Oracle is not responsible for the availability of, or any content provided on, third-party Web sites. You bear all risks associated with the use of such content. If you choose to purchase any products or services from a third party, the relationship is directly between you and the third party. Oracle is not responsible for: (a) the quality of third-party products or services; or (b) fulfilling any of the terms of the agreement with the third party, including delivery of products or services and warranty obligations related to purchased products or services. Oracle is not responsible for any loss or damage of any sort that you may incur from dealing with any third party.