Oracle® Database Express Edition

Installation Guide

11*g* Release 2 (11.2) for Linux x86-64

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Welcome to *Oracle Database Express Edition Installation Guide for Linux x86-64*. This guide covers the following topics:

> **Note:** The most up-to-date version of this installation guide is available from the Oracle Database Express Edition (Oracle Database XE) download page on Oracle Technology Network:
>
> `http://www.oracle.com/pls/xe112/homepage`

1 Introduction

Oracle Database XE is easy to install. Oracle Database XE provides an Oracle database and tools for managing the database.

Oracle Database XE supports the following development environments:

- **Oracle SQL Developer**: Oracle SQL Developer is a graphical version of SQL*Plus that gives database developers a convenient way to perform basic tasks. You can connect to any target Oracle Database XE schema using standard Oracle database authentication. Once connected, you can perform operations on objects in the database.

  Download and install Oracle SQL Developer from:

  `http://www.oracle.com/technetwork/developer-tools/sql-developer/overview/index.html`

ORACLE

- **Oracle Application Express**: Oracle Database XE includes Oracle Application Express, a rapid web application development tool for the Oracle database. Oracle Application Express is enabled by default in Oracle Database XE.
- **Java**: Java is an open-source programing language that is designed for use in the distributed environment of the Internet. You can use Oracle JDeveloper, which is a free integrated Java development environment with support for the full development life cycle.

  Download and install Oracle JDeveloper from:

  `http://www.oracle.com/technetwork/developer-tools/jdev/overview/index.html`
- **PHP**

  PHP is an open-source server-side embedded scripting language that is designed for Web development. PHP code can be embedded in HTML. You can download and install PHP from `http://www.php.net`.

For more information on Oracle Database XE, see the following:

- Oracle Database XE home page on the Oracle Technology Network:

  `http://www.oracle.com/technetwork/database/express-edition/`
- Oracle Database XE Documentation Library:

  Click the appropriate link on the Oracle Database XE home page on the Oracle Technology Network; or from the system menus, get to **Oracle Database 11g Express Edition** and select **Get Help**, then **Read Documentation**.
- Discussion forum:

  Click the appropriate link on the Oracle Database XE home page on the Oracle Technology Network; or from the system menus, get to **Oracle Database 11g Express Edition** and select **Get Help**, then **Go to Online Forum**.

2 Requirements

This section covers the following topics:

2.1 Software Requirements

This section covers the following topics:

2.1.1 System Requirements

Table 1 provides system requirements for Oracle Database XE.

Table 1 Oracle Database XE Requirements

Requirement	Value
Operating system	One of the following: ■ Oracle Enterprise Linux 4 Update 7 ■ Oracle Enterprise Linux 5 Update 2 ■ Red Hat Enterprise Linux 4 Update 7 ■ Red Hat Enterprise Linux 5 Update 2 ■ SUSE Linux Enterprise Server 10 SP2 ■ SUSE Linux Enterprise Server 11
Network protocol	The following protocols are supported: ■ IPC ■ Named Pipes ■ SDP ■ TCP/IP ■ TCP/IP with SSL
RAM	256 megabytes minimum, 512 megabytes recommended
Disk space	1.5 gigabyte minimum
Packages	■ `glibc` should be greater than or equal to `2.3.4-2.41` ■ `make` should be greater than or equal to `3.80` ■ `binutils` should be greater than or equal to `2.16.91.0.5` ■ `gcc` should be greater than or equal to `4.1.2` ■ `libaio` should be greater than or equal to `0.3.104`

2.1.2 Swap Space Requirements

Minimum swap space required for Oracle Database XE is 2 GB or twice the size of RAM, whichever is lesser.

2.1.3 Server Component Kernel Parameter Requirements

The Oracle Database XE installation checks your system for the following kernel parameter settings. If the kernel parameters of your system are less than the values listed in Table 2, then the installation will modify the kernel parameter setting to use the values in this table.

Table 2 Kernel Parameter Settings Required for Oracle Database XE

Kernel Parameter	Setting
`semmsl`	250
`semmns`	32000
`semopm`	100
`semmni`	128
`shmmax`	4294967295

Table 2 (Cont.) Kernel Parameter Settings Required for Oracle Database XE

Kernel Parameter	Setting
shmmni	4096
shmall	2097152
file-max	6815744
VERSION	2.4.21
ip_local_port_range	9000–65500

2.2 Permission Requirement for Installing Oracle Database XE

You must have root permission to install Oracle Database XE.

3 Licensing Restrictions

This section covers the following topics:

- Oracle Database XE CPU Limitations
- Oracle Database XE Installation and Execution Restrictions
- Oracle Database XE User Data Limitations
- Oracle Database XE RAM Limitation
- HTTPS Support

3.1 Oracle Database XE CPU Limitations

If Oracle Database XE is installed on a computer with more than one CPU (including dual-core CPUs), then it will consume, at most, processing resources equivalent to one CPU. For example, on a computer with two CPUs, if two Oracle database clients try to simultaneously execute CPU-intensive queries, then Oracle Database 11*g* Standard Edition, Oracle Database 11*g* Standard Edition One, or Oracle Database 11*g* Enterprise Edition will use both CPUs to efficiently process the queries. However, with Oracle Database XE, the Oracle database will process the queries at the rate of a single CPU even if concurrent processing on two CPUs would be faster. To use the full processing resources of your computer, upgrade to Oracle Database 11*g* Standard Edition, Oracle Database 11*g* Standard Edition One, or Oracle Database 11*g* Enterprise Edition.

3.2 Oracle Database XE Installation and Execution Restrictions

Only one installation of Oracle Database XE can be performed on a single computer. This does not affect any existing installation or new installations of Oracle Database 11*g* Standard Edition, Oracle Database 11*g* Standard Edition One, or Oracle Database 11*g* Enterprise Edition. In addition, users can run only one instance of the Oracle Database XE database on each individual computer. To run more than one Oracle Database server instance or install more than one copy of the database software, upgrade to Oracle Database 11*g* Standard Edition, Oracle Database 11*g* Standard Edition One, or Oracle Database 11*g* Enterprise Edition.

3.3 Oracle Database XE User Data Limitations

The maximum amount of user data in an Oracle Database XE database cannot exceed 11 gigabytes. If the user data grows beyond this limit, then an `ORA-12592` error will appear. To use more than 11 gigabytes of user data, upgrade to Oracle Database 11*g* Standard Edition, Oracle Database 11*g* Standard Edition One, or Oracle Database 11*g* Enterprise Edition.

3.4 Oracle Database XE RAM Limitation

The maximum amount of RAM that an Oracle Database XE database uses cannot exceed 1 gigabyte, even if more is available. Table 1, " Oracle Database XE Requirements" provides the minimum and recommended RAM that you should use. The exact amount of RAM that Oracle Database XE uses is computed automatically using Automatic Memory Management.

To use more than 1 gigabyte of RAM, upgrade to Oracle Database 11*g* Standard Edition, Oracle Database 11*g* Standard Edition One, or Oracle Database 11*g* Enterprise Edition.

For more information about managing memory, refer to *Oracle Database Express Edition 2 Day DBA*.

3.5 HTTPS Support

HTTPS is not supported natively with the HTTP listener built into Oracle Database XE. If you want HTTPS support, use an alternative Web listener, such as Apache, that does provide HTTPS support, and provide proxies for the URLs provided by Oracle Database XE.

For information about managing security in Oracle Database XE, refer to *Oracle Database Express Edition 2 Day DBA*.

4 Installing Oracle Database XE

This section covers the following topics:

- Procedure for Installing Oracle Database XE
- Performing a Silent Installation
- Setting the Oracle Database XE Environment Variables
- Compiling the Oracle ODBC Driver Demos
- Making Oracle Database XE Available to Remote Clients

4.1 Procedure for Installing Oracle Database XE

Before attempting to install Oracle Database XE 11.2 uninstall any existing Oracle Database XE or database with the SID `XE` from the target system.

To install Oracle Database XE:

1. Log on to your computer with root permissions.
2. Go to the following Web site:

   `http://www.oracle.com/technetwork/database/express-edition/downloads/index.html`

3. Click **Free Download** and follow the instructions to select and download the Linux version of Oracle Database XE.
4. Run the Oracle Database XE executable `oracle-xe-11.2.0-1.0.x86_64.rpm` to install Oracle Database XE.

   ```
   # rpm -ivh downloads/oracle-xe-11.2.0-1.0.x86_64.rpm
   ```

   The installation displays a status of its progress.
5. When prompted, run the following command:

   ```
   # /etc/init.d/oracle-xe configure
   ```

6. Enter the following configuration information:
   - A valid HTTP port for the Oracle Application Express (the default is 8080)
   - A valid port for the Oracle database listener (the default is 1521)
   - A password for the `SYS` and `SYSTEM` administrative user accounts
   - Confirm password for `SYS` and `SYSTEM` administrative user accounts
   - Whether you want the database to start automatically when the computer starts (next reboot)

This completes configuration. The database starts during the boot process.

Note: The password for the `INTERNAL` and `ADMIN` Oracle Application Express user accounts is initially the same as the `SYS` and `SYSTEM` administrative user accounts.

To start the database manually, run this command as root user:

```
# /etc/init.d/oracle-xe start
```

To stop the database manually, run the following command as root user:

```
# /etc/init.d/oracle-xe stop
```

Note: You can find the database creation logs in `$ORACLE_HOME/config/log/*`.

4.2 Performing a Silent Installation

The response file `xe.rsp` is shipped along with the Oracle Database XE executable `.rpm` file.

To perform a silent installation:

1. After downloading the installation executable (described under "Procedure for Installing Oracle Database XE" on page 5), prepare the response file `xe.rsp` that contains settings for the following values:
   - `ORACLE_LISTENER_PORT`: A valid listener numeric port value, so that you can connect to Oracle Database XE
   - `ORACLE_HTTP_PORT`: A valid HTTP port numeric value for Oracle Application Express

- ORACLE_PASSWORD: A password value for the SYS and SYSTEM administrative user accounts
- ORACLE_CONFIRM_PASSWORD: The SYS and SYSTEM password value again, to confirm it
- ORACLE_DBENABLE: Yes (y) or no (n), to specify whether you want to start Oracle Database XE automatically when the computer starts

The default values are populated for ORACLE_LISTENER_PORT, ORACLE_HTTP_PORT, and ORACLE_DBENABLE in the response file.

2. Create a wrapper shell script to perform the silent installation.

   It should contain commands similar to the following:

```
#!/bin/bash

rpm -ivh  /downloads/oracle-xe-11.2.0-1.0.x86_64 > /xe_logs/XEsilentinstall.log

/etc/init.d/oracle-xe configure responseFIle=<location of xe.rsp> >> /xe_
logs/XEsilentinstall.log
```

3. Run the wrapper script as the root user.

   For details of the installation, see the XEsilentinstall.log file.

After you complete the silent installation, set the Oracle Database XE environment variables, which is described in Section 4.3, "Setting the Oracle Database XE Environment Variables".

Note: You can find the database creation logs in $ORACLE_HOME/config/log/*.

4.3 Setting the Oracle Database XE Environment Variables

After you have installed and configured Oracle Database XE, users must set their environment before they use Oracle Database XE. They do not need to log on with root permissions to do so. Oracle Database XE provides a script that sets the necessary environment variables.

Follow these steps:

1. Go to the following directory:

   /u01/app/oracle/product/11.2.0/xe/bin

2. Look for the following scripts:
   - oracle_env.csh (for C or tcsh shell)
   - oracle_env.sh (for Bourne, Bash, or Korn shell)
3. Run the appropriate script for your shell. For example:
   - Bourne, Bash, or Korn shell:

     ```
     $ . ./oracle_env.sh
     ```

   - C or tcsh shell:

     ```
     % source oracle_env.csh
     ```

You may also want edit your login or profile files so that these environment variables are set properly each time you log in or open a new shell.

For Bourne, Bash, or Korn shell, enter the following line into the `.bash_profile` (to log in) or `.bashrc` file (to open a new shell):

```
. /u01/app/oracle/product/11.2.0/xe/bin/oracle_env.sh
```

For C or tcsh shell, enter the following line into the `.login` file (to log in) or `.cshrc` file (to open a new shell):

```
source /u01/app/oracle/product/11.2.0/xe/bin/oracle_env.csh
```

4.4 Making Oracle Database XE Available to Remote Clients

After you install Oracle Database XE, the **Get Started With Oracle Database 11g Express Edition** home page is only available from the local server, not remotely.

> **Security Note:** With remote HTTP access to Oracle Database XE, all information exchanged between the browser and the database is in clear text—that is, unencrypted—including database user names and passwords. If this is cause for concern, do not enable remote HTTP connection to the database.

To use the SQL Command Line, follow these steps:

1. Start SQL*Plus and log in as `SYSTEM`:

   ```
   $ sqlplus system
   Enter password: SYSTEM_password
   ```

   Or, if you are logging in remotely:

   ```
   $ sqlplus system@xe_server_host_name
   Enter password: SYSTEM_password
   ```

2. At the SQL prompt, enter the following command:

   ```
   SQL> EXEC DBMS_XDB.SETLISTENERLOCALACCESS(FALSE);
   ```

4.5 Compiling the Oracle ODBC Driver Demos

If you plan to compile and run the Oracle ODBC Driver demos, then follow these steps:

1. If you do not have unixODBC DriverManager installed, then download it from the following Web site:

   http://www.unixodbc.org/

2. Set the `ODBCDM_HOME` environment variable to point to the directory where you installed DriverManager.

3. Run the following make file to compile the Oracle ODBC Driver demos:

   ```
   make -f demo_xe.mk buildodbcdemo ODBCDM_HOME=DriverManager_location
   ```

5 Starting Oracle Database XE

After you have installed Oracle Database XE, the database is up and running and you can begin using it right away, as follows:

1. If the database is currently stopped, start it as follows: click the **Main** menu (on Gnome) or the **Applications** menu (on KDE), then **Oracle Database 11g Express Edition**, and then click **Start Database**.
2. Go to the **Main** menu (on Gnome) or the **Applications** menu (on KDE), then **Oracle Database 11g Express Edition**, and then click **Run SQL Command Line**. Connect to the database using the user name `SYSTEM`, and supply the password that you created during configuration.
3. To begin learning about Oracle Database XE, use the OracleDatabase XE Documentation.

   To access the Oracle Database XE Documentation, from the **Main** menu (on Gnome) or the **Applications** menu (on KDE), select **Oracle Database 11g Express Edition**, then **Get Help**, and then click **Read Documentation**.

Note: To use Oracle Database XE, your user id must be a member of Linux group `dba`.

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6 Deinstalling Oracle Database XE

When you deinstall Oracle Database XE, all components, including data files, the database, and the software, are removed. If you want to save your data files but remove the Oracle Database XE software and database, then first export the data by using one of the methods described in *Oracle Database Express Edition 2 Day DBA* before you deinstall.

Because the deinstallation process removes all files from the directory in which Oracle Database XE is installed, back up any files from the directory (if needed) before you deinstall.

This section covers the following topic:

- Deinstalling the Oracle Database XE Software

6.1 Deinstalling the Oracle Database XE Software

Follow these steps:

1. Log on with root privileges.
2. Run the following command to deinstall Oracle Database XE:

```
# rpm -e oracle-xe
```

7 Importing and Exporting Data between 10.2 XE and 11.2 XE

To import and export data between 10.2 XE and 11.2 XE, perform the following steps:

1. Copy the `gen_inst.sql` file from the upgrade directory of 11.2 XE shiphome to your local directory.

2. Connect to 10.2 XE database as SYS user and run gen_inst.sql. This will generate install.sql, gen_apps.sql and other .sql files. The files will be generated in the folder containing gen_inst.sql.

   ```
   SQL> @<local_dir>/gen_inst.sql
   ```

   where local_dir is the local directory where gen_inst.sql is copied

   Note: Do not copy the gen_inst.sql file into the 10.2 XE home directory if you plan to install XE 11.2 on the same system. All generated files get deleted if XE 10.2 is uninstalled.

3. To export the data from 10.2 XE database, perform the following steps:

   a. Connect to 10.2 XE database as SYS user.

   b. Create a dump folder *dump_folder* on the local file system.

   c. Create directory object DUMP_DIR with READ and WRITE privilege to SYSTEM user.

   ```
   SQL> CREATE DIRECTORY DUMP_DIR AS '/<dump_folder>';
   SQL>GRANT read, write ON DIRECTORY DUMP_DIR TO system;
   ```

   d. Export data from 10.2 XE database to the dump folder.

   ```
   expdp system/system_password full=Y
          EXCLUDE=SCHEMA:\"LIKE \'APEX_%\'\",SCHEMA:\"LIKE \'FLOWS_%\'\"
          directory=DUMP_DIR dumpfile=DB10G.dmp logfile=expdpDB10G.log
   expdp system/system_password TABLES=FLOWS_FILES.WWV_FLOW_FILE_OBJECTS$
          directory=DUMP_DIR dumpfile=DB10G2.dmp logfile=expdpDB10G2.log
   ```

4. Deinstall 10.2 XE if installation of 11.2 XE is planned on the same system.

5. Install 11.2 XE database. For more information see Section 4, "Installing Oracle Database XE".

6. To import data to the 11.2 XE database, perform the following steps:

   a. Connect to 11.2 XE database as SYS user.

   b. Create directory object DUMP_DIR with READ and WRITE privilege to SYSTEM user.

   ```
   SQL> CREATE DIRECTORY DUMP_DIR AS '/<dump_folder>';
   SQL>GRANT read, write ON DIRECTORY DUMP_DIR TO system;
   ```

   c. Import data to 11.2 XE database from the dump folder.

   ```
   impdp  system/system_password full=Y directory=DUMP_DIR
         dumpfile=DB10G.dmp logfile=expdpDB10G1.log
   impdp  system/system_password directory=DUMP_DIR
        TABLE_EXISTS_ACTION=APPEND  TABLES=FLOWS_FILES.WWV_FLOW_FILE_OBJECTS$
   dumpfile=DB10G2.dmp logfile=expdpDB10G1b.log
   ```

7. Connect to 11.2 XE database as SYS user and run the script install.sql, which was generated in Step 2. This will trigger the execution of ws.sql, gen._ apps.sql, and other .sql files.

8 Reporting Security Vulnerabilities

If you find any security vulnerabilities with Oracle Database XE, then send a description of the problem to Oracle at the following e-mail address:

secalert_us@oracle.com

Include the following information in your e-mail:

- A complete description of the problem you encountered
- The version of Oracle Database XE you were using
- The platform on which you were running Oracle Database XE
- Any scripts or examples that may be helpful in tracking down the security problem

For more information on how Oracle handles security issues, visit:

`http://www.oracle.com/technology/deploy/security/index.html`

9 Oracle Database XE Character and Language Configurations

Oracle Database XE is available only in Universal multi-language character set and language configuration:

- The database is created using Unicode(`AL32UTF8`) character set, which is suitable for global data in any language.
- Japanese, Brazilian Portuguese, and Simplified Chinese language message files are installed in `ORACLE_HOME`.
- The Oracle Application Express user interface and database error messages are available in English, Japanese, Brazilian Portuguese, and Simplified Chinese.

"Globalization Support: Configuring Locale and Character Sets with the NLS_LANG Parameter" on page 11 provides additional character and language information.

10 Globalization Support: Configuring Locale and Character Sets with the NLS_LANG Parameter

This section explains how to configure globalization settings for Oracle Database XE. It covers the following topics:

10.1 About the NLS_LANG Parameter

Oracle provides globalization support that enables users to interact with a database in their preferred locale and character set settings. Setting the `NLS_LANG` environment variable specifies locale behavior for Oracle software. It sets the language and territory used by the client application and the database server. It also sets the character set for entering and displaying data by a client program, such as SQL*Plus.

The `NLS_LANG` parameter uses the following format:

NLS_LANG = *LANGUAGE_TERRITORY.CHARACTER_SET*

This format is explained in the following table:

Parameter	Description
LANGUAGE	Specifies the language for displaying product messages, day names, and month names in SQL. *Oracle Database Globalization Support Guide* provides more information about languages.
TERRITORY	Specifies the cultural-specific conventions for date, number, time, and monetary formatting. *Oracle Database Globalization Support Guide* provides more information about territory conventions.
CHARACTER_SET	Specifies the encoding used by the client application, which is usually the character set of the source data being processed, and the character set used in displaying the output. "Supported Character Sets" on page 13 provides a list of supported character sets.

Oracle Database Globalization Support Guide provides information about the NLS_LANG parameter and Globalization Support initialization parameters.

10.2 Default Values for NLS_LANG

The locale setting of your Linux session affects how you should set your NLS_LANG parameter. Table 3 lists the different Linux languages and their default locale IDs, together with the corresponding NLS_LANG values.

Table 3 NLS_LANG Parameter Values for Linux Locales

Language	Locale ID	NLS_LANG
English (American)	en_US.UTF-8	AMERICAN_AMERICA.AL32UTF8
English (American)	en_US.ISO-8859-1	AMERICAN_AMERICA.WE8ISO8859P1
English (American)	en_US.ISO-8859-15	AMERICAN_AMERICA.WE8ISO8859P15
English (Australian)	en_AU.UTF-8	ENGLISH_AUSTRALIA.AL32UTF8
English (Australian)	en_AU.ISO-8859-1	ENGLISH_AUSTRALIA.WE8ISO8859P1
English (Australian)	en_AU.ISO-8859-15	ENGLISH_AUSTRALIA.WE8ISO8859P15
English (British)	en_GB.UTF-8	ENGLISH_UNITED KINGDOM.AL32UTF8
English (British)	en_GB.ISO-8859-1	ENGLISH_UNITED KINGDOM.WE8ISO8859P1
English (British)	en_GB.ISO-8859-15	ENGLISH_UNITED KINGDOM.WE8ISO8859P15
English (Ireland)	en_IE.UTF-8	ENGLISH_IRELAND.AL32UTF8

Table 3 (Cont.) NLS_LANG Parameter Values for Linux Locales

Language	Locale ID	NLS_LANG
English (Ireland)	en_IE.ISO-8859-1	ENGLISH_IRELAND.WE8ISO8859P1
English (Ireland)	en_IE.ISO-8859-15	ENGLISH_IRELAND.WE8ISO8859P15
Portuguese (Brazilian)	pt_BR.UTF-8	BRAZILIAN PORTUGUESE_BRAZIL.AL32UTF8
Portuguese (Brazilian)	pt_BR.ISO-8859-1	BRAZILIAN PORTUGUESE_ BRAZIL.WE8ISO8859P1
Portuguese (Brazilian)	pt_BR.ISO-8859-15	BRAZILIAN PORTUGUESE_ BRAZIL.WE8ISO8859P15
Japanese	ja_JP.EUC-JP	JAPANESE_JAPAN.JA16EUC
Japanese	ja_JP.UTF-8	JAPANESE_JAPAN.AL32UTF8
Chinese (simplified)	zh_CN.GB18030	SIMPLIFIED CHINESE_CHINA.ZHS32GB18030
Chinese (simplified)	zh_CN.UTF-8	SIMPLIFIED CHINESE_CHINA.AL32UTF8
Chinese (traditional)	zh_TW.BIG5	TRADITIONAL CHINESE_TAIWAN.ZHT16BIG5
Chinese (traditional)	zh_TW.UTF-8	TRADITIONAL CHINESE_TAIWAN.AL32UTF8

10.3 Supported Character Sets

Table 4 lists the supported character sets in Oracle Database XE.

The character set AL16UTF16 can be used only as an NCHAR character set, and not as a database character set.

Table 4 Supported Universal Character Sets

Name	Description
AL16UTF16	Unicode 4.0 UTF-16 Universal character set
AL32UTF8	Unicode 4.0 UTF-8 Universal character set
UTF8	Unicode 3.0 UTF-8 Universal character set, CESU-8 compliant

10.4 Charmap and Oracle Character Set

The character set mapping (charmap) of the locale ID assigned for each language may vary depending on the distribution and version of the Linux operating system. To determine the current character mapping, enter the following command in a shell:

```
% locale charmap
UTF-8
```

Table 5 lists each charmap with its corresponding Oracle character set. In general, you should update the *CHARACTER_SET* part of the NLS_LANG parameter according to the actual charmap of your Linux session.

Table 5 Mapping charmap to Oracle Character Set

Locale charmap	Oracle Character Set
UTF-8	AL32UTF8
ISO-8859-1	WE8ISO8859P1
ISO-8859-2	EE8ISO8859P2
ISO-8859-3	SE8ISO8859P3
ISO-8859-4	NEE8ISO8859P4
ISO-8859-5	CL8ISO8859P5
ISO-8859-6	AR8ISO8859P6
ISO-8859-7	EL8ISO8859P7
ISO-8859-8	IW8ISO8859P8
ISO-8859-9	WE8ISO8859P9
ISO-8859-13	BLT8ISO8859P13
ISO-8859-14	CEL8ISO8859P14
ISO-8859-15	WE8ISO8859P15
BIG5	ZHT16BIG5
BIG5-HKSCS	ZHT16HKSCS
CP1251	CL8MSWIN1251
CP1255	IW8MSWIN1255
EUC-JP	JA16EUC
EUC-KR	KO16KSC5601
EUC-TW	ZHT32EUC
GB18030	ZHS32GB18030
GB2312	ZHS16CGB231280
GBK	ZHS16GBK
TIS-620	TH8TISASCII

11 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

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