



ORACLE®

ORACLE DATABASE ADMINISTRATION

Module 2: Implementing a database Setting OS variables

ORACLE DATABASE ADMINISTRATION SERIES

S.N

STEPHEN N NJOROGÉ

LinkedIn: www.linkedin.com/in/stephen-njoroge

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Module 2: Implementing a Database

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Manually Intensive Approach

This refers to the process of manually exporting each variable for every session. The changes are temporal meaning they vanish once you log out. It involves the following:

Log in as the Oracle user

```
su - oracle
```

Set the Oracle Base Directory

```
export ORACLE_BASE=/u01/app/oracle
```

```
[oracle@centoradevdbvr ~]$ export ORACLE_BASE=/u01/app/oracle
[oracle@centoradevdbvr ~]$ echo $ORACLE_BASE
/u01/app/oracle
[oracle@centoradevdbvr ~]$
```

Set the Oracle Home Directory

```
export ORACLE_HOME=$ORACLE_BASE/product/12.2.0/dbhome_1
```

```
[oracle@centoradevdbvr ~]$ echo $ORACLE_HOME
/u01/app/oracle/product/12.2.0/dbhome_1
[oracle@centoradevdbvr ~]$
```

Set the Oracle SID

```
export ORACLE_SID=ORCL
```

```
[oracle@centoradevdbvr ~]$ echo $ORACLE_SID
ORCL
[oracle@centoradevdbvr ~]$
```

Add Oracle binaries to the PATH

```
export PATH=$ORACLE_HOME/bin:$PATH
```

```
[oracle@centoradevdbvr ~]$ echo $PATH
/u01/app/oracle/product/12.2.0/dbhome_1/bin:/u01/app/oracle/product/11.2.0/dbhome_1/bin:/usr/local/bin:/usr/bin:/usr/
.local/bin:/home/oracle/bin
[oracle@centoradevdbvr ~]$
```

Set the LD_LIBRARY_PATH

```
export LD_LIBRARY_PATH=$ORACLE_HOME/lib
```

```
[oracle@centoradevdbvr ~]$ echo $LD_LIBRARY_PATH
/u01/app/oracle/product/12.2.0/dbhome_1/lib:/lib:/usr/lib:/usr/lib64
[oracle@centoradevdbvr ~]$
```

Set the NLS_LANG variable

```
export NLS_LANG=AMERICAN_AMERICA.AL32UTF8
```

```
[oracle@centoradevdbvr ~]$ export NLS_LANG=AMERICAN_AMERICA.AL32UTF8
[oracle@centoradevdbvr ~]$ echo $NLS_LANG
AMERICAN_AMERICA.AL32UTF8
[oracle@centoradevdbvr ~]$
```

Verify All Settings

```
echo $ORACLE_BASE
echo $ORACLE_HOME
echo $ORACLE_SID
echo $PATH
echo $LD_LIBRARY_PATH
```

```
[oracle@centoradevdbvr ~]$ echo $ORACLE_BASE
/u01/app/oracle
[oracle@centoradevdbvr ~]$ echo $ORACLE_HOME
/u01/app/oracle/product/12.2.0/dbhome_1
[oracle@centoradevdbvr ~]$ echo $ORACLE_SID
ORCL
[oracle@centoradevdbvr ~]$ echo $PATH
/u01/app/oracle/product/12.2.0/dbhome_1/bin:/u01/app/oracle/product/11.2.0/dbhome_1/bin:/usr/local/bin:/usr/bin:/usr/local/sbin
.local/bin:/home/oracle/bin
[oracle@centoradevdbvr ~]$ echo $LD_LIBRARY_PATH
/u01/app/oracle/product/12.2.0/dbhome_1/lib:/lib:/usr/lib:/usr/lib64
[oracle@centoradevdbvr ~]$
```

You can also list them all with:

```
env | grep ORACLE
```

```
[oracle@centoradevdbvr ~]$ env | grep ORACLE
ORACLE_SID=ORCL
ORACLE_BASE=/u01/app/oracle
ORACLE_HOME=/u01/app/oracle/product/12.2.0/dbhome_1
[oracle@centoradevdbvr ~]$
```

Connect to the Database

sqlplus / as sysdba

```
oracle@centoradevdbvr ~]$ sqlplus / as sysdba

SQL*Plus: Release 12.2.0.1.0 Production on Tue Jun 3 15:19:30 2025

Copyright (c) 1982, 2016, Oracle. All rights reserved.

Connected to:
Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production

SQL>
```

Oracle's Recommended Approach: `.bash_profile`

Log in as `oracle` user

`su - oracle`

Open `.bash_profile` in a text editor

`vi ~/.bash_profile`

Add Oracle Environment Variables

Append the following block at the end of the file:

```
# Oracle Environment Variables
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/19.0.0/dbhome_1
export ORACLE_SID=ORCL
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib
export NLS_LANG=AMERICAN_AMERICA.AL32UTF8
export EDITOR=vi
export ORACLE_TERM=xterm
export TNS_ADMIN=$ORACLE_HOME/network/admin
```

Save and exit `.bash_profile`

Reload the profile to apply changes immediately

`source ~/.bash_profile`

Verify settings

```
echo $ORACLE_BASE
echo $ORACLE_HOME
echo $ORACLE_SID
echo $PATH
env | grep ORACLE
```

```

[oracle@centoradevdbvr ~]$ cat ~/.bash_profile
# .bash_profile

# Load user bashrc
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi

# Base paths
PATH=$PATH:$HOME/.local/bin:$HOME/bin
TMPDIR=$TMP; export TMPDIR

# Oracle environment selection
echo "Select Oracle Environment:"
select db in "Primary DB(ORCL)" "Secondary DB(ORCL2)"; do
    case $db in
        "Primary DB(ORCL)" )
            export ORACLE_SID=ORCL
            export ORACLE_HOME=/u01/app/oracle/product/12.2.0/dbhome_1
            break
            ;;
        "Secondary DB(ORCL2)" )
            export ORACLE_SID=ORCL2
            export ORACLE_HOME=/u01/app/oracle/product/12.2.0/dbhome_2
            break
            ;;
        *)
            echo "Invalid selection. Try again."
            ;;
    esac
done

# Set common Oracle environment
export ORACLE_BASE=/u01/app/oracle
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/usr/lib:/usr/lib64
export CLASSPATH=$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib

echo "Using ORACLE_SID=$ORACLE_SID and ORACLE_HOME=$ORACLE_HOME"

```

My Customized Shortcut Approach

I normally Create a shortcut script for fast setup and reuse.

```
vi ~/setenv.sh
```

```

#!/bin/bash
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/12.2.0/dbhome_1
export ORACLE_SID=ORCL
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib
export NLS_LANG=AMERICAN_AMERICA.AL32UTF8
echo "Oracle environment set for ORACLE_SID=$ORACLE_SID"

```

Make it executable:

```
chmod +x ~/setenv.sh
```

Run it anytime with:

```
. ~/setenv.sh
```

```

[oracle@centoradevdbvr ~]$ vi ~/setenv.sh
[oracle@centoradevdbvr ~]$ chmod +x ~/setenv.sh
[oracle@centoradevdbvr ~]$ cat ~/setenv.sh
#!/bin/bash
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/12.2.0/dbhome_1
export ORACLE_SID=ORCL
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib
export NLS_LANG=AMERICAN_AMERICA.AL32UTF8
echo "Oracle environment set for ORACLE_SID=$ORACLE_SID"

[oracle@centoradevdbvr ~]$

```

Oracle Shortcut: Full Environment Setup Script (set_env.sh)

```

#!/bin/bash
# Oracle Environment Setup Script (Full Version)

# Oracle Base Directory (OFA-compliant)
export ORACLE_BASE=/u01/app/oracle

# Oracle Home Directory (Software location)
export ORACLE_HOME=$ORACLE_BASE/product/19.0.0/dbhome_1

# Oracle Inventory location (for software installation tracking)
export ORAINVENTORY=/u01/app/oraInventory

# Oracle SID (Database name/instance)
export ORACLE_SID=ORCL

# Oracle Unique Name (for RAC/Multitenant)
export ORACLE_UNQNAME=ORCL

# Oracle Hostname
export ORACLE_HOSTNAME=$(hostname)

# Oracle Domain
export ORACLE_DOMAIN=localdomain

# Oracle Password File (optional if using OS authentication)
export ORA_PFILE=$ORACLE_HOME/dbs/orapw$ORACLE_SID

# Oracle Path
export PATH=$ORACLE_HOME/bin:$PATH:/usr/sbin:/usr/local/bin

# Oracle Libraries
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib

# C Compiler (optional - for external procedures)
export CC=gcc

# Network Admin directory
export TNS_ADMIN=$ORACLE_HOME/network/admin

# SQLPATH for locating SQL scripts
export SQLPATH=$ORACLE_HOME/sqlplus/admin

# NLS_LANG - Language, Territory, Character Set
export NLS_LANG=AMERICAN_AMERICA.AL32UTF8

# Oracle Terminal Type (used for SQL*Plus formatting)

```



```

export ORACLE_TERM=xterm

# Editor for Oracle text utilities
export EDITOR=vi

# Java Settings
export JAVA_HOME=$ORACLE_HOME/jdk
export CLASSPATH=$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib:$ORACLE_HOME/network/jlib

# Display for GUI tools (dbca, dbua, netca)
export DISPLAY=:0.0

# Oracle Diagnostic Destination (for ADR base)
export DIAG_ADR_ENABLED=ON

# TEMP location (optional - some tools may write logs here)
export TMP=/tmp
export TEMP=/tmp

# Session Feedback
echo ""
echo "Oracle Environment Variables Set:"
echo "  ORACLE_SID      = $ORACLE_SID"
echo "  ORACLE_HOME     = $ORACLE_HOME"
echo "  ORACLE_BASE     = $ORACLE_BASE"
echo "  ORAINVENTORY    = $ORAINVENTORY"
echo "  PATH            = $PATH"
echo "  LD_LIBRARY_PATH = $LD_LIBRARY_PATH"
echo "  TNS_ADMIN       = $TNS_ADMIN"
echo "  NLS_LANG        = $NLS_LANG"
echo ""

```

Make Executable and Use It or add it to .bash_profile.

```

chmod +x set_env.sh
echo "source /home/oracle/set_env.sh" >> ~/.bash_profile

```

```

# Oracle Domain
export ORACLE_DOMAIN=localdomain
# Oracle Password File (optional if using OS authentication)
export ORA_PWFIL=$ORACLE_HOME/dbs/orapw$ORACLE_SID
# Oracle Path
export PATH=$ORACLE_HOME/bin:$PATH:/usr/sbin:/usr/local/bin
# Oracle Libraries
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
# C Compiler (optional - for external procedures)
export CC=gcc
# Network Admin directory
export TNS_ADMIN=$ORACLE_HOME/network/admin
# SQLPATH for locating SQL scripts
export SQLPATH=$ORACLE_HOME/sqlplus/admin
# NLS_LANG - Language, Territory, Character Set
export NLS_LANG=AMERICAN_AMERICA.AL32UTF8
# Oracle Terminal Type (used for SQL*Plus formatting)
export ORACLE_TERM=xterm
# Editor for Oracle text utilities
export EDITOR=vi
# Java Settings
export JAVA_HOME=$ORACLE_HOME/jdk
export CLASSPATH=$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib:$ORACLE_HOME/network/jlib
# Display for GUI tools (dbca, dbua, netca)
export DISPLAY=:0.0
# Oracle Diagnostic Destination (for ADR base)
export DIAG_ADR_ENABLED=ON
# TEMP location (optional - some tools may write logs here)
export TMP=/tmp
export TEMP=/tmp
# Session Feedback
echo ""
echo "Oracle Environment Variables Set:"
echo "  ORACLE_SID      = $ORACLE_SID"
echo "  ORACLE_HOME     = $ORACLE_HOME"
echo "  ORACLE_BASE     = $ORACLE_BASE"
echo "  ORAINVENTORY    = $ORAINVENTORY"
echo "  PATH            = $PATH"
echo "  LD_LIBRARY_PATH = $LD_LIBRARY_PATH"
echo "  TNS_ADMIN       = $TNS_ADMIN"
echo "  NLS_LANG        = $NLS_LANG"
echo ""

```