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# 1. Setting Oracle Environment Variables

## 1.1. ORACLE_OWNER

ORACLE_OWNER=oracle

## 1.2. ORACLE_BASE

Top level directory for storing data files and diagnostic information
ORACLE_BASE =/u01/app

## 1.3. ORACLE_HOME

Top level directory of the Oracle system hierarchy
ORACLE_HOME =/u01/app/product/12.1.0/db1

## 1.4. ORACLE_SID

Oracle System Identifier
ORACLE_SID=orcl

## 1.5. LD_LIBRARY_PATH

LD_LIBRARY_PATH=$LD_LIBRARY_PATH: $ORACLE_HOME/lib

## 1.6. TNS_ADMIN

# 2. The user oracle

## 2.1. The PATH variable

### 2.1.1. The Initial Value

```
linsrv2:~ # su - yves
yves@linsrv2:~> echo $PATH
/home/yves/bin:/usr/local/bin:/usr/bin:/bin:/usr/bin/X11:/usr/games
yves@linsrv2:~> env | grep "PATH"
MANPATH=/usr/local/man:/usr/share/man
XNLSPATH=/usr/share/X11/nls
PATH=/home/yves/bin:/usr/local/bin:/usr/bin:/bin:/usr/bin/X11:/usr/games
ALSA_CONFIG_PATH=/etc/alsa-pulse.conf
```

FSH = Filesystem Hierarchy Standard

/bin: Essential command binaries that need to be available in single user mode. For all users, e.g. cat ls cp
For binaries, usable before the /usr partition is mounted.

/usr: Secondary hierarchy for read-only user data. Contains most (multi-)user utilities and applications
/usr/bin : Non-essential command binaries (not needed in single user mode). For all users.
General system-wide binaries.

/usr/local : Tertiary hierarchy for local data, specific to this host. Typically has further subdirectories:
/bin
/lib
/share
The local path means it's not managed by the system packages.
For user-scoped scripts, use ~/bin (A personal bin folder in your home directory) /home/yves/bin

```
yves@linsrv2:/usr/local/bin> ls -la
total 20
drwxr-xr-x 1 root   root   38 Dec 22 22:21 .
drwxr-xr-x 1 root   root   76 Dec 21 12:29 ..
-rwxr-xr-x 1 oracle root 6583 Dec 22 22:21 coraenv
-rwxr-xr-x 1 oracle root 2445 Dec 22 22:21 dbhome
-rwxr-xr-x 1 oracle root 7012 Dec 22 22:21 oraenv
```

### 2.1.2. Adapt PATH to the user oracle

```
oracle@linsrv2:~> echo $PATH
/u01/app/product/12.1.0/db1/bin:/usr/sbin:/usr/local/bin:/usr/bin:/bin:/usr/bin/X11:/usr/games:/home/oracle/bin
```

User specific environment and startup programs
export PATH=$PATH:$HOME/bin

export ORACLE_BASE=/u01/app
export ORACLE_HOME=/u01/app/product/12.1.0/db1

## 2.2. Setting the environnement variables

You can add these environment settings to the end of the ~oracle/.bash_profile file.
This will ensure that the environment variables are set permanently when you log in as “oracle”, or when you switch to the user “oracle” by executing “su – oracle”

### 2.2.1. Login/Non-login shell and Interactive/Non-interactive shell

#### Login Shell

When you log in to the Linux system, the bash shell starts as a login shell. The login shell looks for four different startup files to process commands from.
Bash as login shell will load /etc/profile > $HOME/.bash_profile > $HOME/.bash_login > $HOME/.profile in the order

The /etc/profile file

Notice the export line near the bottom of the file:

```
linsrv2:~ # ls -la /etc/profile
-rw-r--r-- 1 root root 9168 Oct 14 16:14 /etc/profile
```

```
oracle@linsrv2:~> cat /etc/profile | grep "export"
    test -z "${TERM}"           && { TERM=linux; export TERM; }
    test "${TERM}" = "unknown"  && { TERM=linux; export TERM; }
    test "${TERM}" = "ibm327x"  && { TERM=dumb;  export TERM; }
        export LINES COLUMNS TERM
#export ESCDELAY
    # export GZIP
    export CSHEDIT
# Do NOT export UID, EUID, USER, and LOGNAME
export MAIL HOST CPU HOSTNAME HOSTTYPE OSTYPE MACHTYPE
    export PATH
    export INPUTRC
    export HISTSIZE
#export TEXINPUTS
    export LESSOPEN LESSCLOSE LESS LESSKEY PAGER LESS_ADVANCED_PREPROCESSOR MORE
    export MINICOM
    export MANPATH
#export XAPPLRESDIR
        export XKEYSYMDB=/usr/share/X11/XKeysymDB
        export XKEYSYMDB=/usr/X11R6/lib/X11/XKeysymDB
        export XNLSPATH=/usr/share/X11/nls
        export XNLSPATH=/usr/X11R6/lib/X11/nls
    export COLORTERM
#export VERSION_CONTROL
    export PROFILEREAD
    export PATH
```

The $HOME Startup Files

The remaining three startup files are all used for the same function: To provide a user-specific startup file for defining user-specific environment variables. Most Linux distributions use only one of these three startup files.
$HOME/.bash_profile
$HOME/.bash_login
$HOME/.profile

```
oracle@linsrv2:~> ls -l ~/.bash*
-rw------- 1 oracle oinstall 1693 Dec 24 16:10 /home/oracle/.bash_history
-rw-r--r-- 1 oracle oinstall  462 Dec 24 01:18 /home/oracle/.bash_profile
```

```
oracle@linsrv2:~> ls -l ~/.profile
ls: cannot access '/home/oracle/.profile': No such file or directory
```

## Interactive Shell

If you start a bash shell without logging into a system (such as if you just type bash at a CLI prompt), you start what's called an interactive shell. The interactive shell doesn't act like the login shell, but it still provides a CLI prompt for you to enter commands.

If bash is started as an interactive shell, it doesn't process the /etc/profile file. Instead, it checks for the. bashrc file in the user's Home directory.

bash myscript

### 2.2.2. $HOME\bash_profile

```
oracle@linsrv2:~> vi .bash_profile
# .bash_profile

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
        ~/.bashrc
fi

# User specific environment and startup programs

export PATH=$PATH:$HOME/bin

# Oracle install specific environment settings
umask 022

export TMP=/tmp
export TMPDIR=/tmp

export ORACLE_BASE=/u01/app
export ORACLE_HOME=/u01/app/product/12.1.0/db1
export ORACLE_SID=orcl

export PATH=$ORACLE_HOME/bin:/usr/sbin:$PATH

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

# 3. Working with the Oracle Database

## 1.1. ORATAB

This file is used by ORACLE utilities. It is created by root.sh and updated by either Database Configuration Assistant while creating a database or ASM Configuration Assistant while creating ASM instance.

```
linsrv2:/usr/local/bin # ls -la
total 20
drwxr-xr-x 1 root   root   38 Dec 22 22:21 .
drwxr-xr-x 1 root   root   76 Dec 21 12:29 ..
-rwxr-xr-x 1 oracle root 6583 Dec 22 22:21 coraenv
-rwxr-xr-x 1 oracle root 2445 Dec 22 22:21 dbhome
-rwxr-xr-x 1 oracle root 7012 Dec 22 22:21 oraenv
```

## 1.2. SQLPLUS

```
oracle@linsrv2:~> sqlplus /nolog

SQL*Plus: Release 12.1.0.2.0 Production on Sun Dec 25 21:55:41 2016

Copyright (c) 1982, 2014, Oracle.  All rights reserved.

SQL> connect / as sysdba
Connected to an idle instance.
SQL>
```

## 1.3. Starting an Instance and Mounting and Opening a Database

```
oracle@linsrv2:~> sqlplus /nolog

SQL*Plus: Release 12.1.0.2.0 Production on Mon Dec 26 22:03:35 2016

Copyright (c) 1982, 2014, Oracle.  All rights reserved.

SQL> connect system/manager as sysdba
Connected to an idle instance.
SQL> startup
ORACLE instance started.

Total System Global Area 4966055936 bytes
Fixed Size                  2934552 bytes
Variable Size            1023412456 bytes
Database Buffers         3925868544 bytes
Redo Buffers               13840384 bytes
Database mounted.
Database opened.
SQL>
```