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FAQ on Oracle12 / Oracle11 on Vagrant

1. How can I control the setup process ?

In the **Vagrantfile** there is a section # run setup.sh with 1 line

config.vm.provision "shell", path: "scripts/setup.sh"

which refers to this script. You can control the process by uncommenting / comment the scripts

```
# setup.sh controls the process of
# preinstall
# install Oracle SW
# creating databases
# postinstall
# the scripts log into /vagrant/logs/

# preinstall
#/vagrant/scripts/preinstall.sh
#if [[ $? != "0" ]]; then echo "ERROR in preinstall.sh - aborting setup"; exit; fi

# Oracle12 install
#/vagrant/scripts/oracle12c-install.sh
#if [[ $? != "0" ]]; then echo "ERROR in oracle12c-install.sh - aborting setup"; exit; fi

# create Oracle12c Containerdatabase + pluggable database
#/vagrant/scripts/create12cdb.sh
#if [[ $? != "0" ]]; then echo "ERROR in create12cdb.sh - aborting setup"; exit; fi


# Oracle11g install
#/vagrant/scripts/oracle11g-install.sh
#if [[ $? != "0" ]]; then echo "ERROR in oracle11g-install.sh - aborting setup"; exit; fi

# create Oracle11g database
#/vagrant/scripts/create11gdb.sh
#if [[ $? != "0" ]]; then echo "ERROR in create11gdb.sh - aborting setup"; exit; fi

# postinstall
/vagrant/scripts/postinstall.sh
if [[ $? != "0" ]]; then echo "ERROR in postinstall.sh - aborting setup"; exit; fi
```

2. Is Vagrant able to take snapshots ?

Of course - you may take snapshots eg. after the preinstall: **vagrant snapshot take Initial**

```
==> default: Machine booted and ready!
GuestAdditions 4.3.26 running --- OK.
==> default: Checking for guest additions in VM...
==> default: Mounting shared folders...
    default: /vagrant => /home/oracle/git/hello.docker.oracle12c
==> default: Running provisioner: shell...
    default: Running: /tmp/vagrant-shell20150422-13630-19czwml.sh
==> default: Prerequisites installation in progress Wed Apr 22 08:55:42 UTC 2015
==> default: check /vagrant/logs for possible errors
==> default: wait for the message Prerequisites installation finished
==> default: Prerequisites installation finished Wed Apr 22 08:56:57 UTC 2015
oracle@thinkpad3:~/git/hello.docker.oracle12c$ vagrant snapshot take Initial
Taking snapshot Initial
0%...10%...20%...30%...40%...50%...60%...70%...80%...90%...100%
oracle@thinkpad3:~/git/hello.docker.oracle12c$ vagrant snapshot list
Listing snapshots for 'default':
   Name: Initial (UUID: b0931b4b-6c57-4df4-b1b2-41e7eb14e6bb) *

oracle@thinkpad3:~/git/hello.docker.oracle12c$
```

When you want to start the next step, just enter **vagrant provision.**

3. Which shared folders do exist ?

In the work directory where you execute **vagrant up**, there are 2 subdirectories
../logs and ../develop
The scirpts log into ../logs. In the ../develop you may store your own SQL-scripts.

Connect to the VM like that – provided that you know / change the password of the user oracle.

```
oracle@localhost:~
Terminal                                  oracle@localhost:~
oracle@thinkpad3:~/git/hello.docker.oracle12c$ vagrant ssh -p
oracle@127.0.0.1's password:
Last login: Wed Apr 22 07:38:50 2015 from 10.0.2.2
Welcome to your Packer-built virtual machine.
[oracle@localhost ~]$ pwd
/home/oracle
[oracle@localhost ~]$
```

Go to your vagrant-root directory /vagrant an walk around.

```
[CDB1] oracle@localhost:/vagrant/logs
$ cd /vagrant/develop
[CDB1] oracle@localhost:/vagrant/develop
$ ls
oracle11g.rsp  Smon3.56.tar  smonitor.ksh
[CDB1] oracle@localhost:/vagrant/develop
$ cd /vagrant/logs
[CDB1] oracle@localhost:/vagrant/logs
$ ls -1
create11gdb.log1504212247
create12cdb.log1504212202
oracle11g-install.log1504212226
oracle11g-install.log1504212230
oracle11g-install.log1504212234
oracle12c-install.log1504212145
postinstall.log1504212301
postinstall.log1504212304
postinstall.log1504212321
postinstall.log1504212323
preinstall.log1504212140
[CDB1] oracle@localhost:/vagrant/logs
$
```

4. What should I do when I have entered the VM ?

Usually the first step in an unknown machine is cat /**etc/oratab.** This informs you that we have 2 Oracle environments and 2 databases **CDB1** and **UPGR**. Choose your environment by using little scripts in **/usr/local/bin** – **cdb1** sets up the Oracle12g environment and **upgr** sets up the Oracle11g environment. Both provide practical aliases as **s** for sqlplus / as sysdba or **oh** to go to your current ORACLE_HOME. Feel free to add your own shortcuts.

NOTE: I have installed the Oracle11g patchlevel 11.2.0.1 which is known as buggy. It was cumbersome to install. Latest patch of this release was Oracle11g 11.2.0.4, which unfortunately is not available for owners of a Developer License. As we aim to this target group we decided to install this version.

```
[oracle@localhost ~]$ which upgr
/usr/local/bin/upgr
[oracle@localhost ~]$ . upgr
[UPGR] oracle@localhost:~
$ s

SQL*Plus: Release 11.2.0.1.0 Production on Wed Apr 22 07:39:27 2015

Copyright (c) 1982, 2009, Oracle.  All rights reserved.

Connected to an idle instance.

SYS@UPGR>startup
ORACLE instance started.

Total System Global Area  939495424 bytes
Fixed Size                  2218952 bytes
Variable Size             251659320 bytes
Database Buffers          679477248 bytes
Redo Buffers                6139904 bytes
Database mounted.
Database opened.
SYS@UPGR>quit
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
[UPGR] oracle@localhost:~
$ . cdb1
[CDB1] oracle@localhost:~
$ s

SQL*Plus: Release 12.1.0.2.0 Production on Wed Apr 22 07:40:03 2015

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

Connected to an idle instance.

SQL>
```

5. How can I see which database is running ?

```
[CDB1] oracle@localhost:/var/opt/oracle
$ tnsping cdb1

TNS Ping Utility for Linux: Version 12.1.0.2.0 - Production on 22-APR-2015 08:09:55

Copyright (c) 1997, 2014, Oracle.  All rights reserved.

Used parameter files:


Used TNSNAMES adapter to resolve the alias
Attempting to contact (DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1521)) (CONNECT_DATA = (SERVER
 = DEDICATED) (SERVICE_NAME = CDB1)))
OK (0 msec)
[CDB1] oracle@localhost:/var/opt/oracle
$ sqlplus system/vagrant@cdb1

SQL*Plus: Release 12.1.0.2.0 Production on Wed Apr 22 08:10:18 2015

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


Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options

SQL>
```

Another approach is

```
[CDB1] oracle@localhost:~
$ ps -ef | grep pmon | grep -v grep
oracle    2843     1  0 07:39 ?        00:00:00 ora_pmon_UPGR
[CDB1] oracle@localhost:~
$ s

SQL*Plus: Release 12.1.0.2.0 Production on Wed Apr 22 07:47:56 2015

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

Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area 1593835520 bytes
Fixed Size                  2924880 bytes
Variable Size            1023413936 bytes
Database Buffers          553648128 bytes
Redo Buffers               13848576 bytes
Database mounted.
Database opened.
SQL> exit
Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options
[CDB1] oracle@localhost:~
$ ps -ef | grep pmon | grep -v grep
oracle    2843     1  0 07:39 ?        00:00:00 ora_pmon_UPGR
oracle    2956     1  0 07:48 ?        00:00:00 ora_pmon_CDB1
[CDB1] oracle@localhost:~
$
```

6. How can I handle the listener(s) ?

```
$ lsnrctl

LSNRCTL for Linux: Version 11.2.0.1.0 - Production on 22-APR-2015 08:16:35

Copyright (c) 1991, 2009, Oracle.  All rights reserved.

Welcome to LSNRCTL, type "help" for information.

LSNRCTL> status
Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=localhost)(PORT=1521)))
STATUS of the LISTENER
------------------------
Alias                     listener
Version                   TNSLSNR for Linux: Version 12.1.0.2.0 - Production
Start Date                22-APR-2015 07:45:24
Uptime                    0 days 0 hr. 31 min. 16 sec
Trace Level               off
Security                  ON: Local OS Authentication
SNMP                      OFF
Listener Parameter File   /var/opt/oracle/listener.ora
Listener Log File         /u01/app/oracle/diag/tnslsnr/localhost/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=localhost)(PORT=1521)))
The listener supports no services
The command completed successfully
LSNRCTL>
```

To start / shutdown a listener

```
$ lsnrctl

LSNRCTL for Linux: Version 11.2.0.1.0 - Production on 22-APR-2015 08:16:35

Copyright (c) 1991, 2009, Oracle.  All rights reserved.

Welcome to LSNRCTL, type "help" for information.

LSNRCTL> status
Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=localhost)(PORT=1521)))
STATUS of the LISTENER
------------------------
Alias                     listener
Version                   TNSLSNR for Linux: Version 12.1.0.2.0 - Production
Start Date                22-APR-2015 07:45:24
Uptime                    0 days 0 hr. 31 min. 16 sec
Trace Level               off
Security                  ON: Local OS Authentication
SNMP                      OFF
Listener Parameter File   /var/opt/oracle/listener.ora
Listener Log File         /u01/app/oracle/diag/tnslsnr/localhost/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=localhost)(PORT=1521)))
The listener supports no services
The command completed successfully
LSNRCTL> stop listener
Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=localhost)(PORT=1521)))
The command completed successfully
LSNRCTL>
```

7. How can I handle TNS problems ?

I have placed the listener.ora and the tnsnames.ora in $TNS_ADMIN (/var/opt/oracle).

Even if the tnsping utility shows a database, it does not mean that you can reach the database via then TNS framework. There are a some common pitfalls in the TNS configuration.

Here is a typical TNS problem

```
$ sqlplus system/vagrant@cdb1

SQL*Plus: Release 12.1.0.2.0 Production on Wed Apr 22 07:51:21 2015

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

ERROR:
ORA-12533: TNS:illegal ADDRESS parameters


Enter user-name: ^C
[CDB1] oracle@localhost:~
$ oerr 12533
Usage: oerr facility error

Facility is identified by the prefix string in the error message.
For example, if you get ORA-7300, "ora" is the facility and "7300"
is the error.  So you should type "oerr ora 7300".

If you get LCD-111, type "oerr lcd 111", and so on.
[CDB1] oracle@localhost:~
$ oerr ora 12533
12533, 00000, "TNS:illegal ADDRESS parameters"
// *Cause: An illegal set of protocol adapter parameters was specified. In
// some cases, this error is returned when a connection cannot be made to the
// protocol transport.
// *Action: Verify that the destination can be reached using the specified
// protocol. Check the parameters within the ADDRESS section of
// TNSNAMES.ORA.  Legal ADDRESS parameter formats may be found in the
// Oracle operating system specific documentation for your platform.
// Protocols that resolve names at the transport layer (such as DECnet object
// names) are vulnerable to this error if not properly configured or names are
// misspelled.
[CDB1] oracle@localhost:~
```

Correct the syntax error and the you can connect via then TNS.

```
[CDB1] oracle@localhost:/var/opt/oracle
$ tnsping cdb1

TNS Ping Utility for Linux: Version 12.1.0.2.0 - Production on 22-APR-2015 08:09:55

Copyright (c) 1997, 2014, Oracle.  All rights reserved.

Used parameter files:


Used TNSNAMES adapter to resolve the alias
Attempting to contact (DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1521)) (CONNECT_DATA = (SERVER
 = DEDICATED) (SERVICE_NAME = CDB1)))
OK (0 msec)
[CDB1] oracle@localhost:/var/opt/oracle
$ sqlplus system/vagrant@cdb1

SQL*Plus: Release 12.1.0.2.0 Production on Wed Apr 22 08:10:18 2015

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


Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options

SQL>
```

8. How can I see the options of a database ?

It is crucial to know the options of a database, because it decides what I can do with it. Besides, in production, it is a matter of license fees.

Write a little script eg. registry.sql

```
set lines 120
set pages 66
set feedback off
col comp_name for a41
col status for a10
col version for a11
col modified for a20
select name from v$database;
select comp_name, status, version, modified from dba_registry;
~
```

If you excute it in the CDB1 database you see this listing

```
SQL> @registry

NAME
---------
CDB1

COMP_NAME                                STATUS     VERSION     MODIFIED
---------------------------------------- ---------- ----------- --------------------
Oracle Database Vault                    VALID      12.1.0.2.0  21-APR-2015 22:12:06
Oracle Application Express               VALID      4.2.5.00.08 21-APR-2015 22:12:06
Oracle Label Security                    VALID      12.1.0.2.0  21-APR-2015 22:12:05
Spatial                                  VALID      12.1.0.2.0  21-APR-2015 22:12:04
Oracle Multimedia                        VALID      12.1.0.2.0  21-APR-2015 22:12:01
Oracle Text                              VALID      12.1.0.2.0  21-APR-2015 22:12:00
Oracle Workspace Manager                 VALID      12.1.0.2.0  21-APR-2015 22:11:55
Oracle XML Database                      VALID      12.1.0.2.0  21-APR-2015 22:11:52
Oracle Database Catalog Views            VALID      12.1.0.2.0  21-APR-2015 22:11:47
Oracle Database Packages and Types       VALID      12.1.0.2.0  21-APR-2015 22:11:49
JServer JAVA Virtual Machine             VALID      12.1.0.2.0  21-APR-2015 22:11:58
Oracle XDK                               VALID      12.1.0.2.0  21-APR-2015 22:11:59
Oracle Database Java Packages            VALID      12.1.0.2.0  21-APR-2015 22:12:00
OLAP Analytic Workspace                  VALID      12.1.0.2.0  21-APR-2015 22:12:02
Oracle OLAP API                          VALID      12.1.0.2.0  21-APR-2015 22:12:04
Oracle Real Application Clusters         OPTION OFF 12.1.0.2.0  07-JUL-2014 06:52:28
SQL>
```

See the difference in the UPGR database:

```
SYS@UPGR>@registry

NAME
---------
UPGR

COMP_NAME                                STATUS     VERSION     MODIFIED
---------------------------------------- ---------- ----------- --------------------
Oracle Workspace Manager                 VALID      11.2.0.1.0  21-APR-2015 23:00:02
Oracle Database Catalog Views            VALID      11.2.0.1.0  21-APR-2015 22:59:25
Oracle Database Packages and Types       VALID      11.2.0.1.0  21-APR-2015 22:59:24
SYS@UPGR>
```

Here I decided to limit the options the minimum, because we need this database only for educational purposes, i.e. for training the different methods of upgrading a database to Oracle12c.

Study the scripts create11gdb.sh and create11gdb.sql to see the old manual way of creating a database.

The CDB1 was created using the dbca in silent mode. Study the scripts create12cdb.sh.

For new-comers all scripts in the subdirectory ../scripts are a complete workshop on installing.

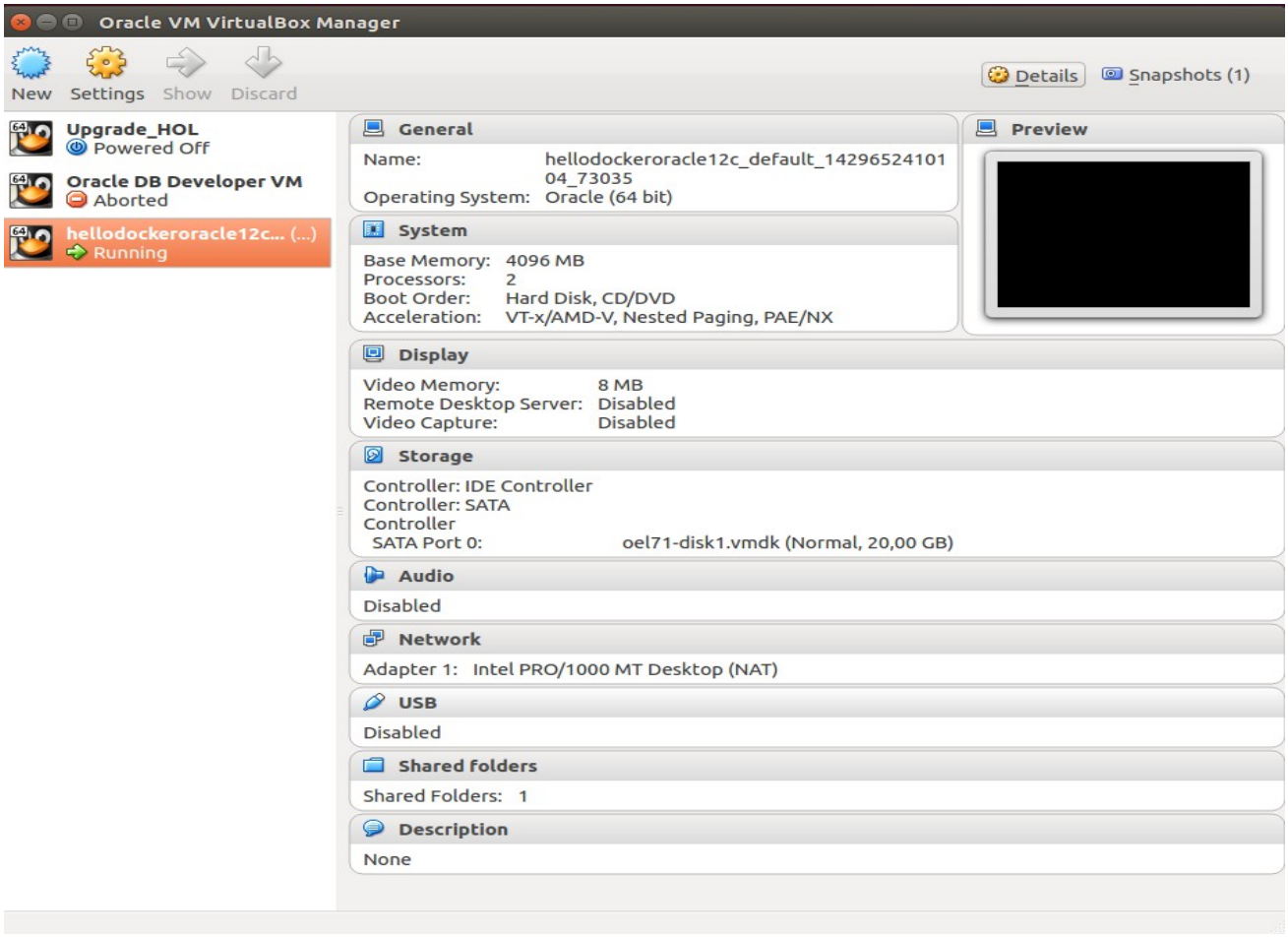
9. Shutdown databases

For new-comers only: there are different ways of shutting down, especially in Oracle12c Container Databases. This would be part of on extra workshop. For now see

```
[CDB1] oracle@localhost:~
$ s

SQL*Plus: Release 12.1.0.2.0 Production on Wed Apr 22 08:46:03 2015

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


Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options

SQL> shutdown immediate
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL>
```

10. What has Vagrant to do with VirtualBox ?

See some good books, eg. Vagrant Up and Running by Mitchell Hashimoto, the author of Vagrant. There exists an ePub Edition. There we learn, that Vagrant presupposes a VirtualBox, no matter from which provider. I have an Oracle VirtualBox with some other Oracle VirtualBoxes, which I can reommend.



11. As user oracle I cannot execute scripts stored in the shared folders.

As user vagrant you have no problem, because the shared folder /vagrant belongs to the user vagrant.

If you want full compliance of your scripts eg. in the folder /vagrant/develop you could do the following.

In the Vagrantfile uncomment this line

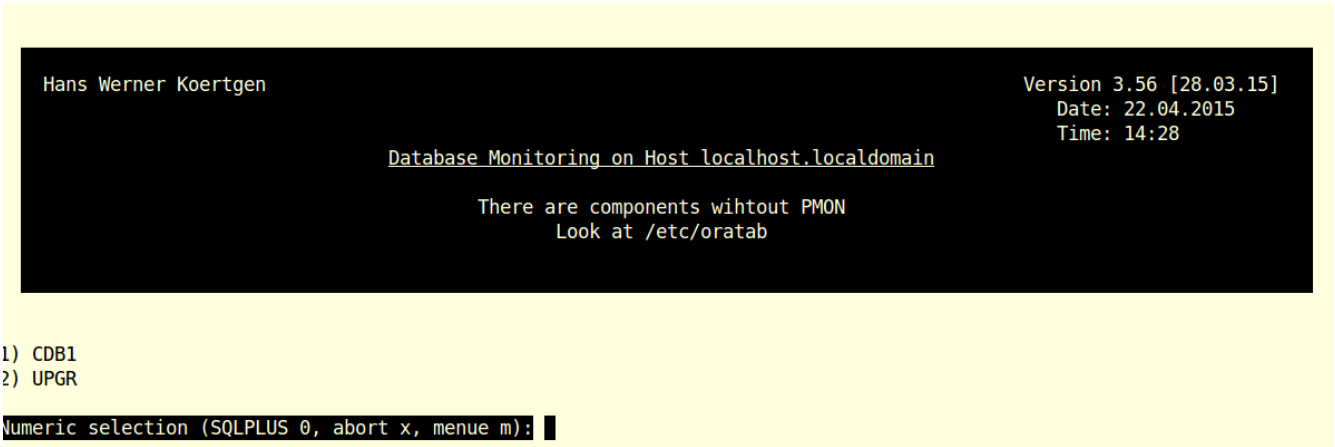
#config.vm.synced_folder "./develop", "/develop", owner: "oracle", group: "oinstall" Vagrantfile

and execute **vagrant reload.** Before the setup there exist no user oracle. There we cannot leave this line uncommented.

See the difference of a mounted shared folder.

```
[CDB1] oracle@localhost:/develop
$ cd /vagrant/develop
[CDB1] oracle@localhost:/vagrant/develop
$ ll
total 480
-rw-r--r-- 1 vagrant vagrant  22668 21. Apr 17:52 oracle11g.rsp
-rw-r--r-- 1 vagrant vagrant 460800 14. Apr 14:24 Smon3.56.tar
-rwxr--r-- 1 vagrant vagrant   3651 23. Okt 16:03 smonitor.ksh
[CDB1] oracle@localhost:/vagrant/develop
$ cd /develop
[CDB1] oracle@localhost:/develop
$ ll
total 480
-rw-r--r-- 1 oracle oinstall  22668 21. Apr 17:52 oracle11g.rsp
-rw-r--r-- 1 oracle oinstall 460800 14. Apr 14:24 Smon3.56.tar
-rwxr--r-- 1 oracle oinstall   3651 23. Okt 16:03 smonitor.ksh
[CDB1] oracle@localhost:/develop
$ ./smonitor.ksh
```

Here is one of my scripts, developed during 15 years working as DBA.



It would surpass this handout to demonstrate this tool. Writing one's own DBA – scripts can be tought in a special workshop eg. on Performance Tuning or New Features in PL/SQL or working with In-Memory Database.

In any case it would be a good idea to take a snapshot before you begin to work with the databases.

If there are questions, contact my son or me.