DBA Júnior II

Em Oracle 11gR2 e 12cR2
Em Oracle Enterprise Linux 7.6
Inclui Arquitetura Multitenant

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Comandos no Treinamento

Comando com o usuário root:

```
# ls -lh
```

Comando com um usuário de manutenção:

```
$ sudo ls -lh
```

Comando com um usuário normal:

```
$ ls -lh
```

Adicionar texto a um arquivo:

```
# vi /etc/fstab
...
/dev/mapper/ol-u01   /home   xfs   defaults   0 0
...
```

Comando no Oracle:

```
SQL> SELECT STATUS FROM V$INSTANCE;
```

Algo deve ser alterado de acordo com sua máquina:

Hostname: nerv01.localdomain

Quando algo dá errado propositalmente:

O que aconteceu?

Ambiente

Bancos de dados:
- nerv01: banco MERC
- nerv02: banco VENU
- nerv03: banco TERR
- nerv04: banco MART
- nerv05: banco JUPI
- nerv06: banco SATU
- nerv07: banco URAN
- nerv08: banco NETU

Colocar todas as senhas como “Nerv2019”, sem as aspas.

DBA Júnior

- Extração simples de dados (SELECT).
- Manipulação simples de dados (INSERT, UPDATE, DELETE)
- Instalação do SGBD (mas não Upgrade).
- Criação de Bancos de Dados.
- Verificação e alteração de parâmetros (mas não a decisão a respeito).
- Execução de scripts.
- Manutenção de usuários e permissões.
- Manutenção de objetos (Tabelas, Índices, etc.).
- Manutenção de espaço.
- Execução de Backup físico e lógico (mas não Restore).
- Transporte de objetos entre servidores.
- Verificação de disponibilidade.
- Início de verificação de problemas (Troubleshooting).
- Início de análise de desempenho (Tuning).
- **Seguir procedimentos documentados.**

Chamado 01

***Instalar Linux*.**

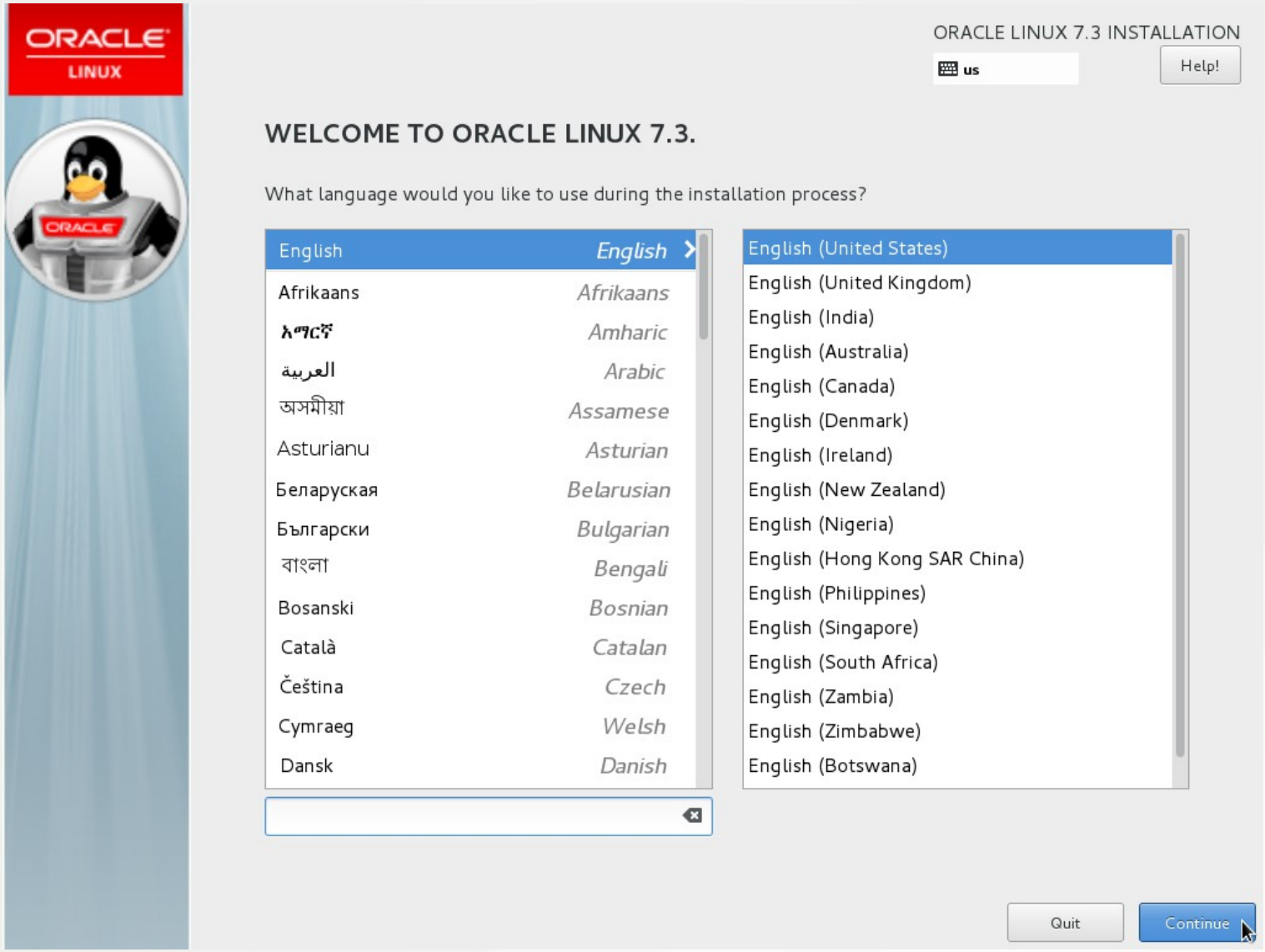
Requisitos:

- Oracle Enterprise Linux 7.
- Instalar em Modo Gráfico.
- Utilizar LVM.
- Criar um usuário de administração (sudo).

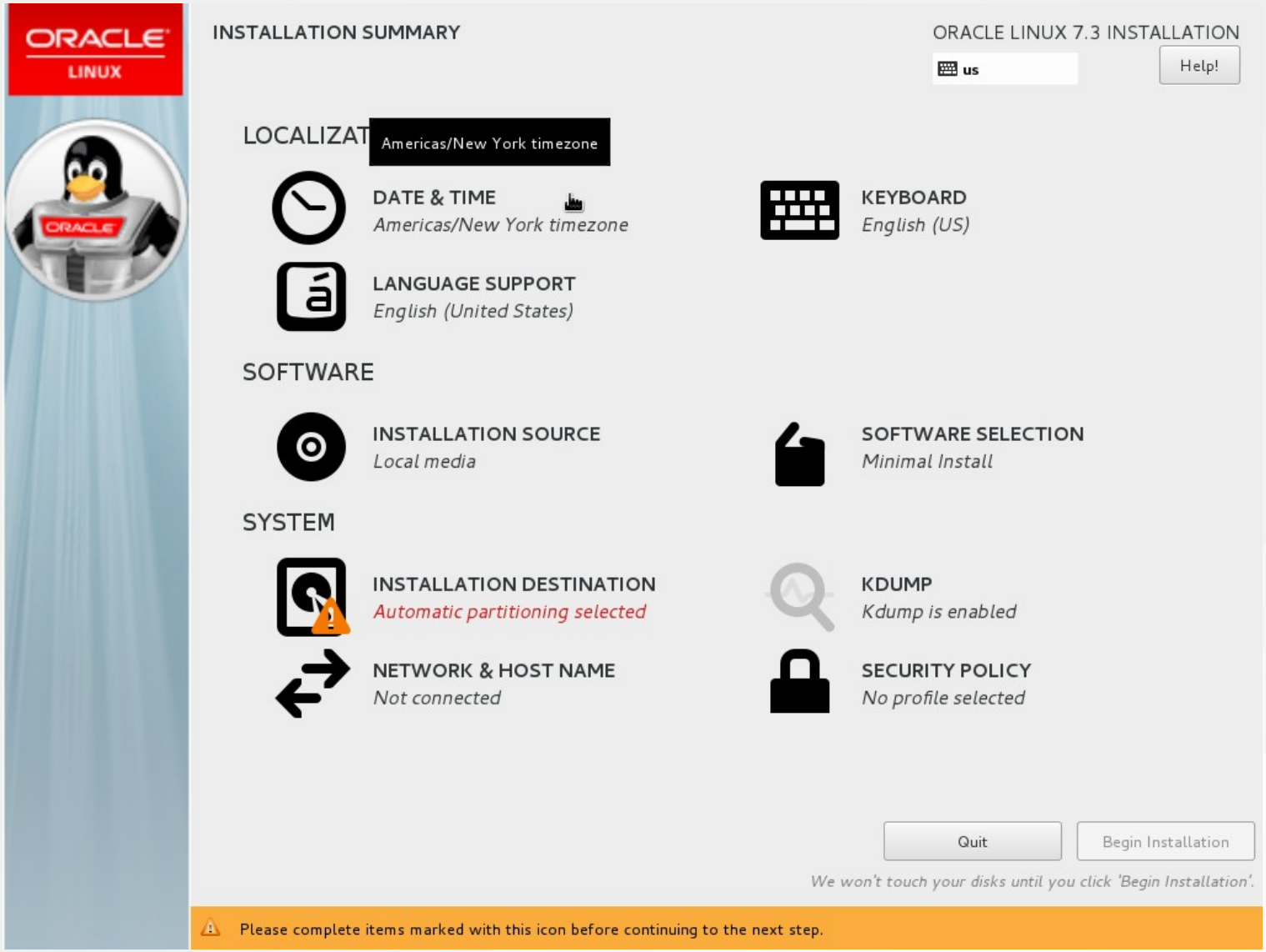
Procedimento:

Chamado 01 - Continuação

Chamado 01 - Continuação



Chamado 01 - Continuação



Chamado 01 - Continuação

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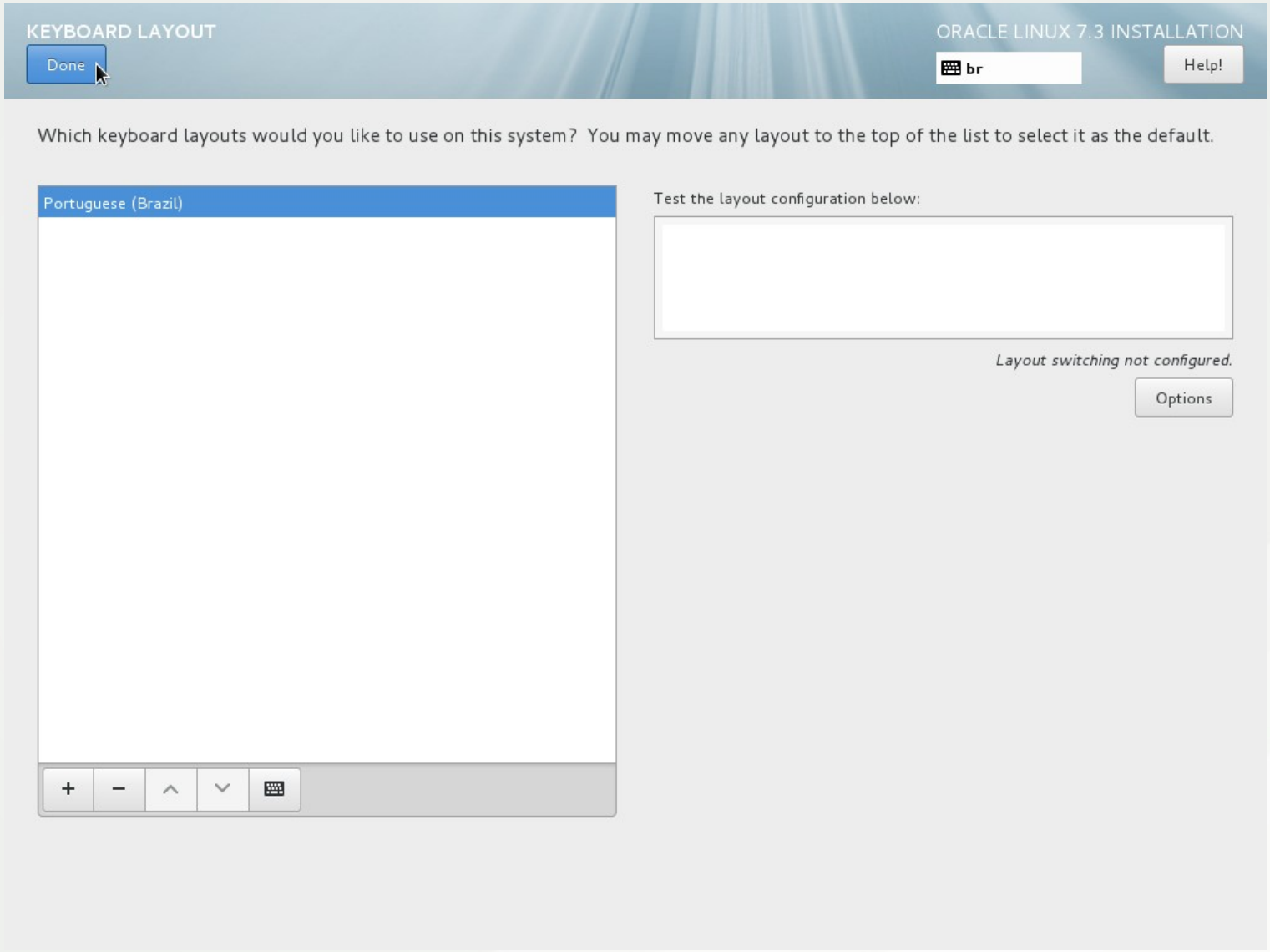
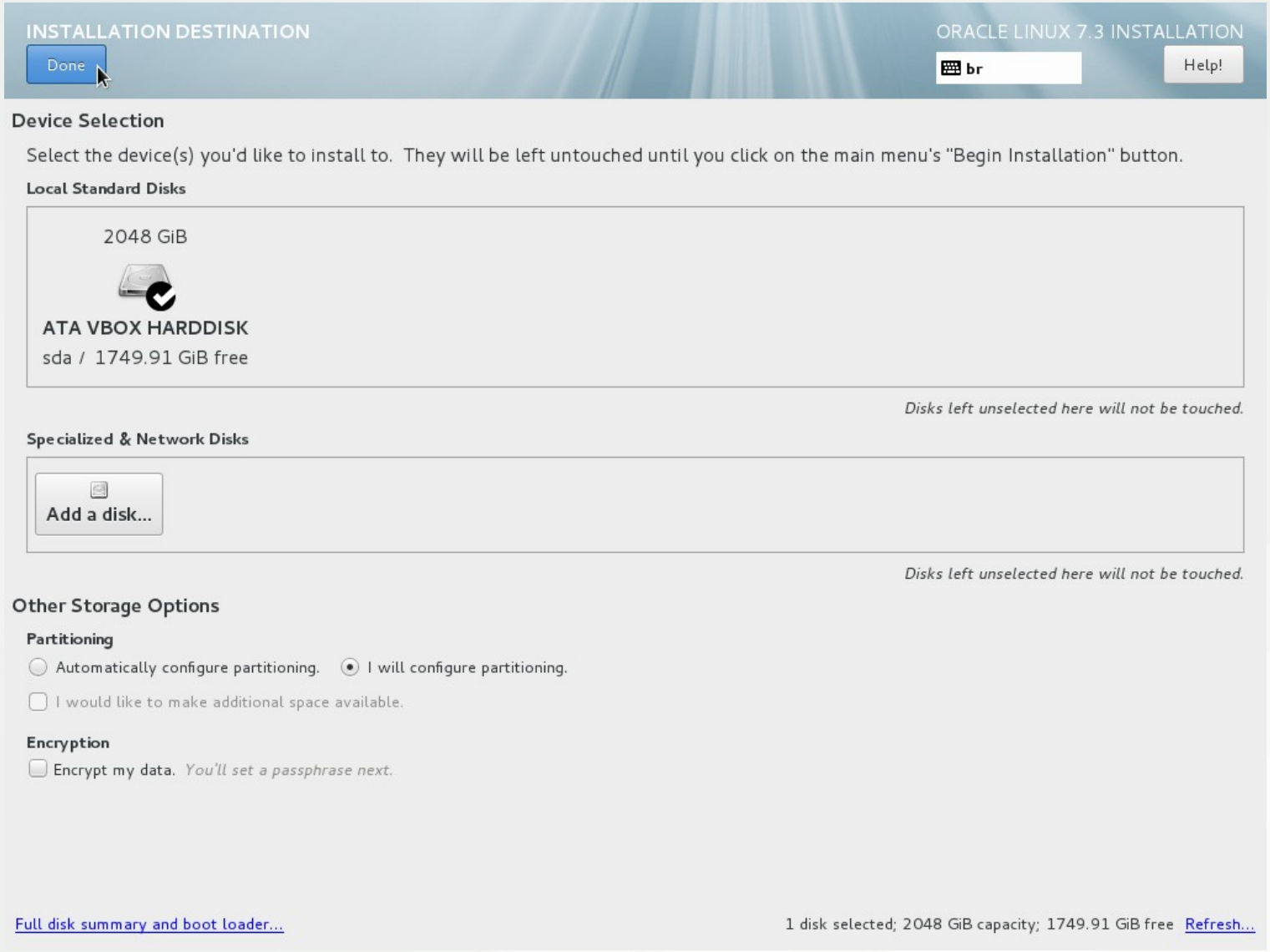
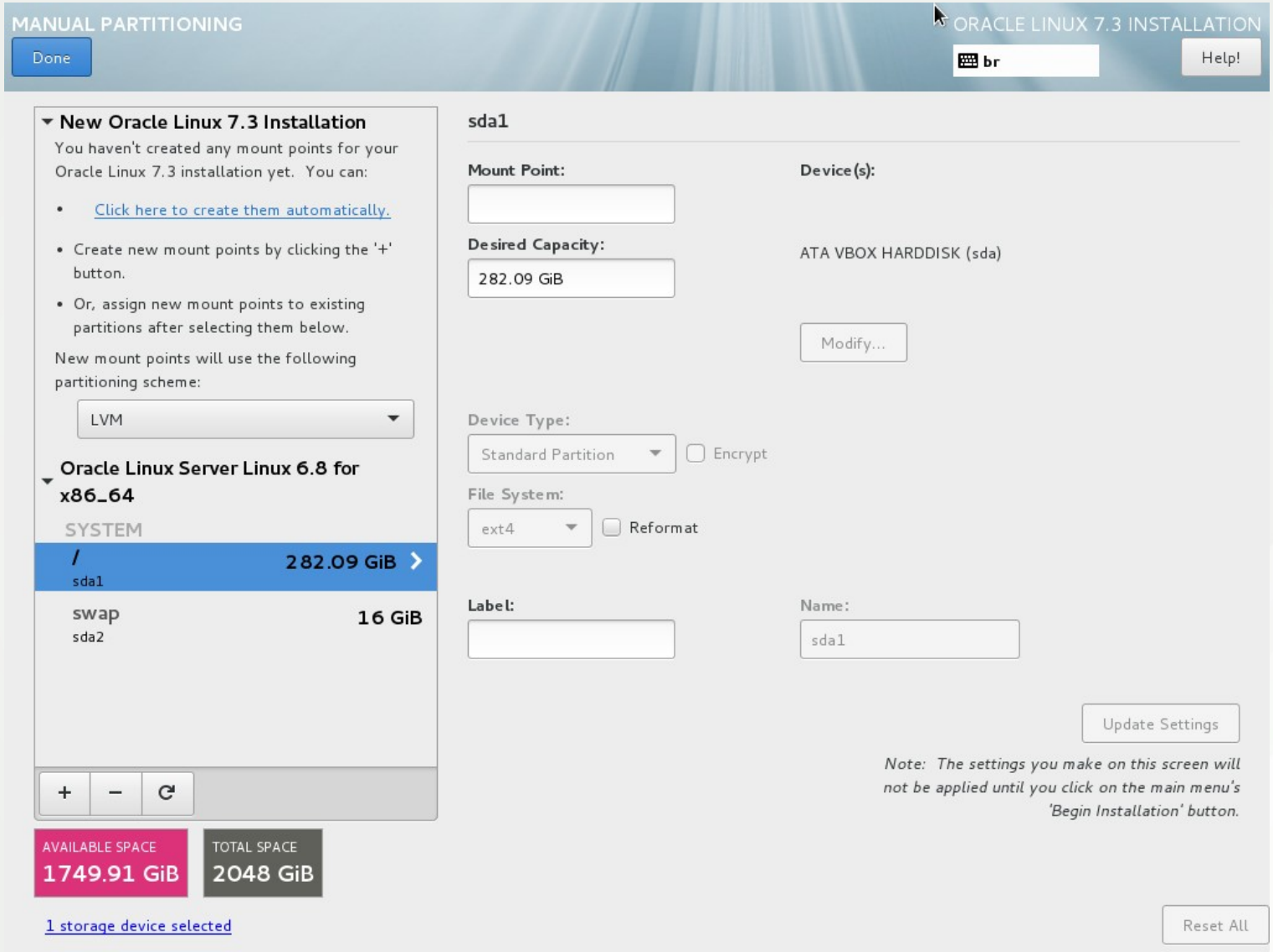


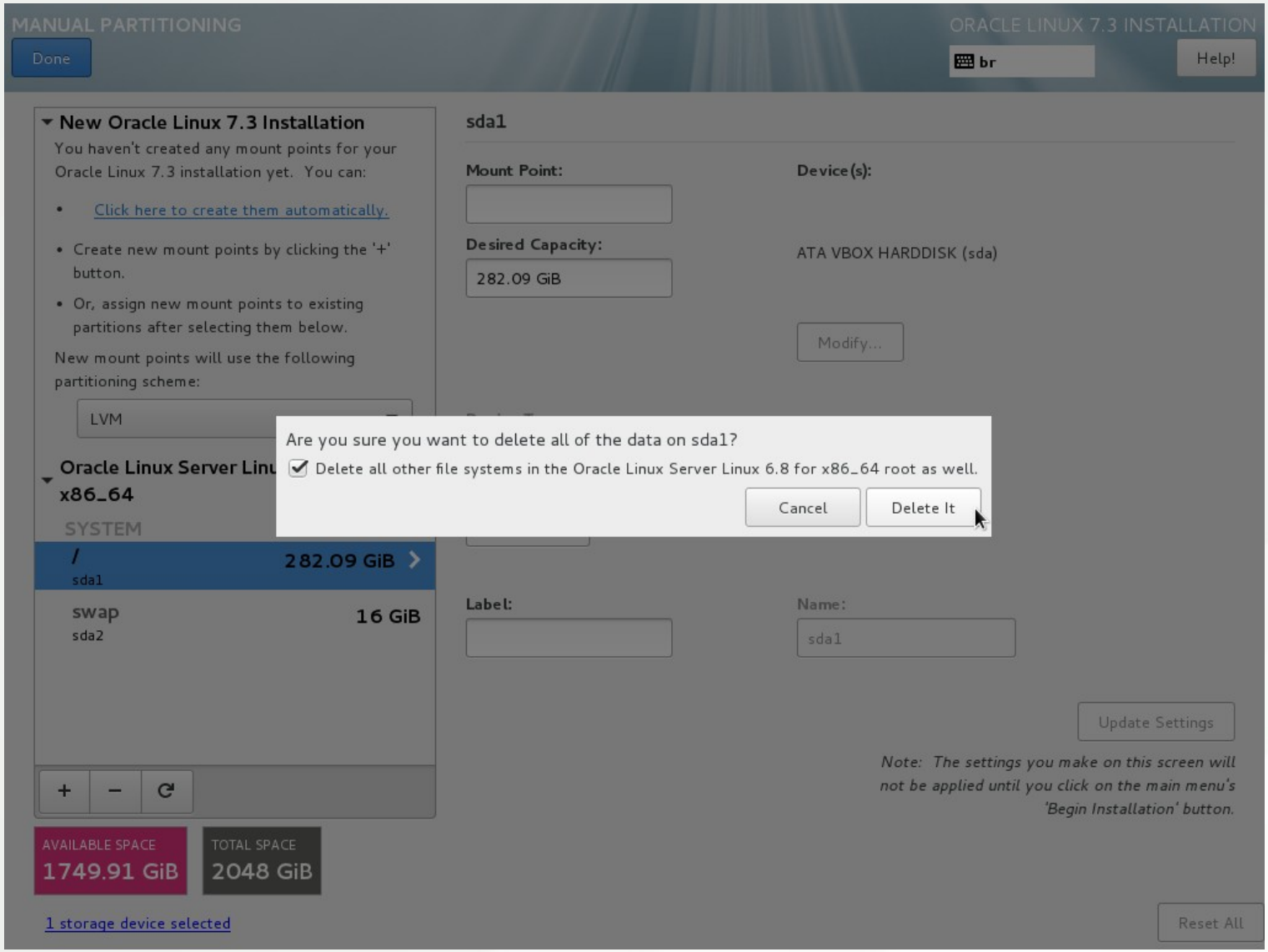
Chamado 01 - Continuação



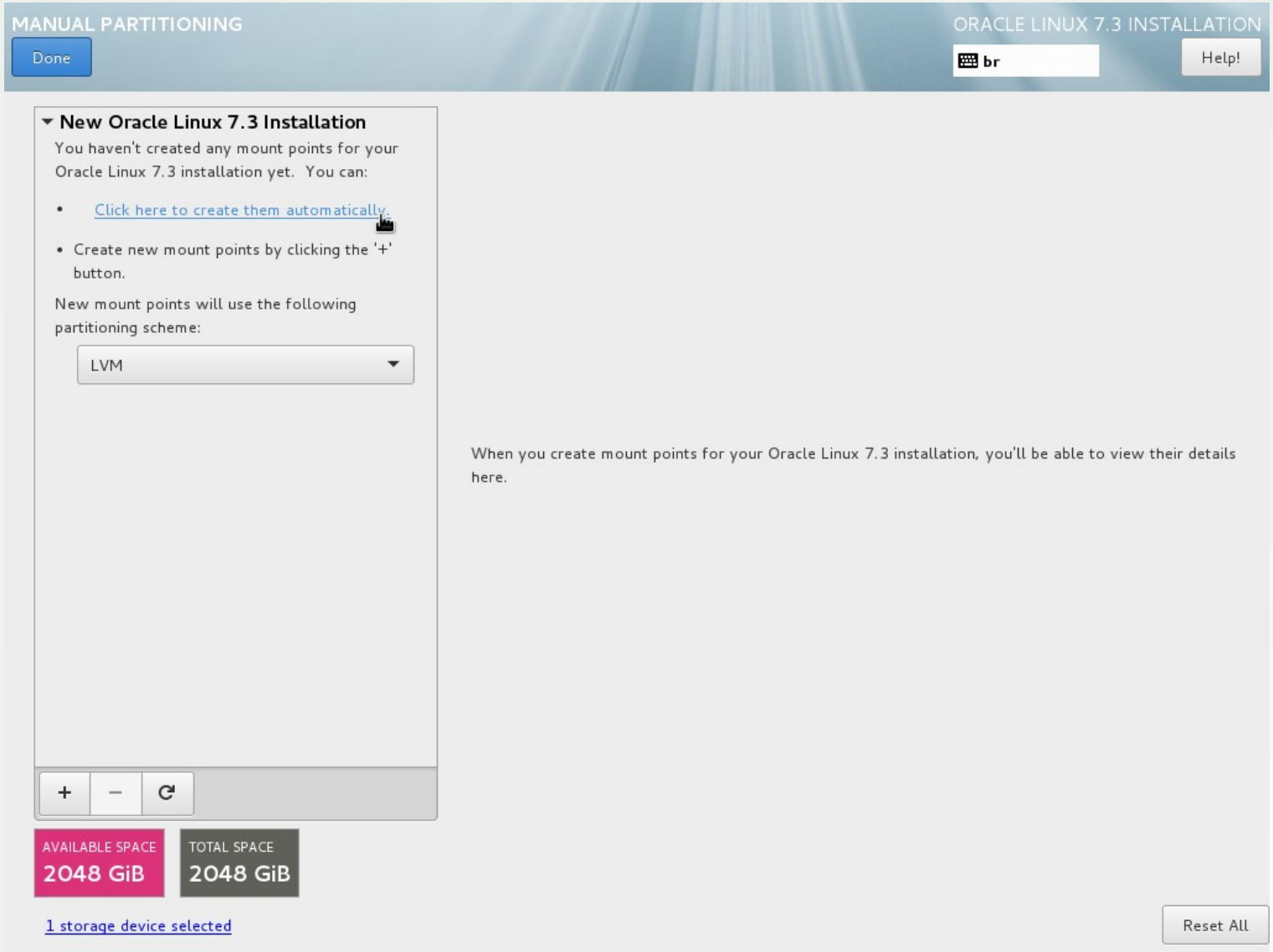
Chamado 01 - Continuação



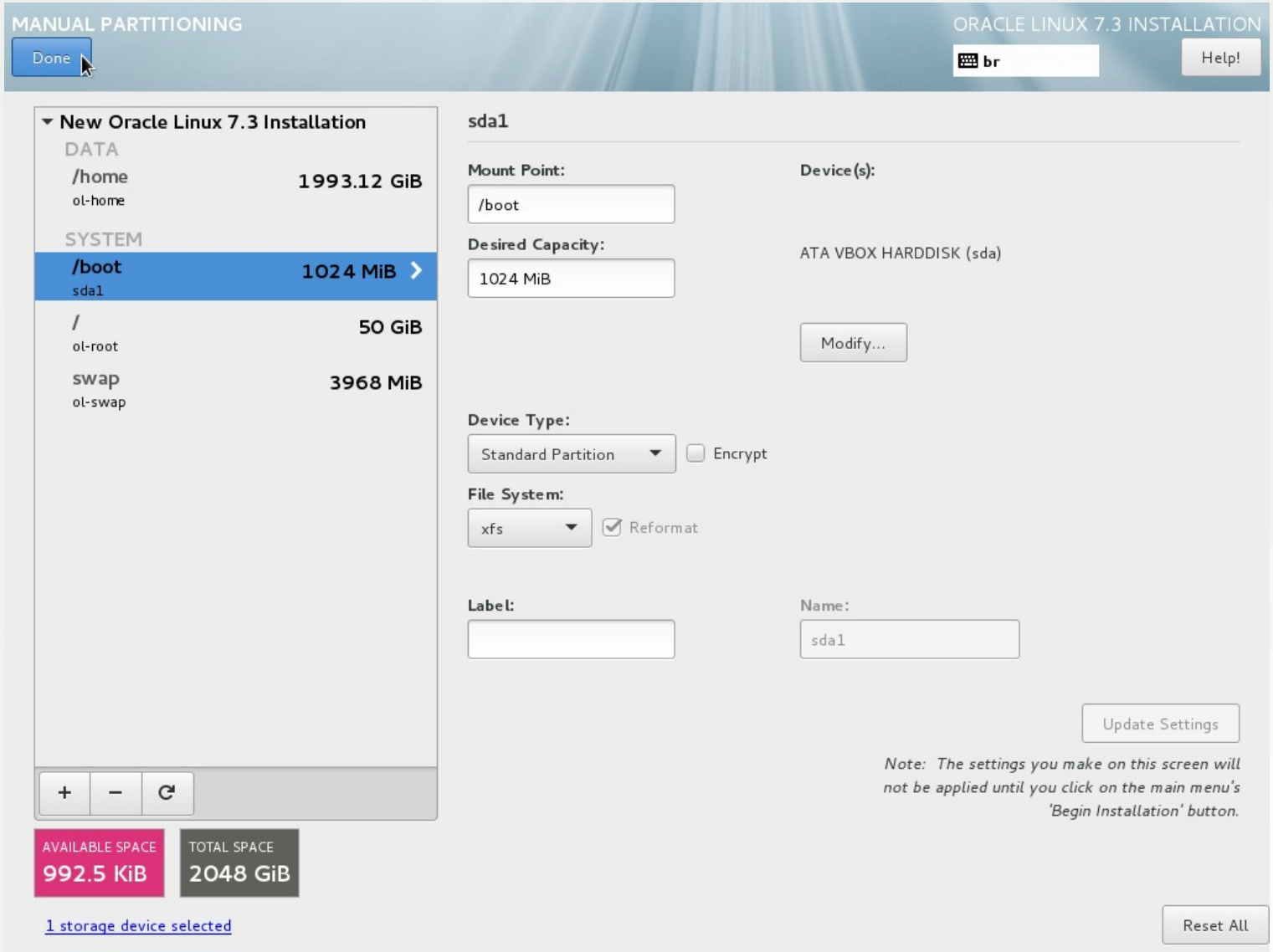
Chamado 01 - Continuação



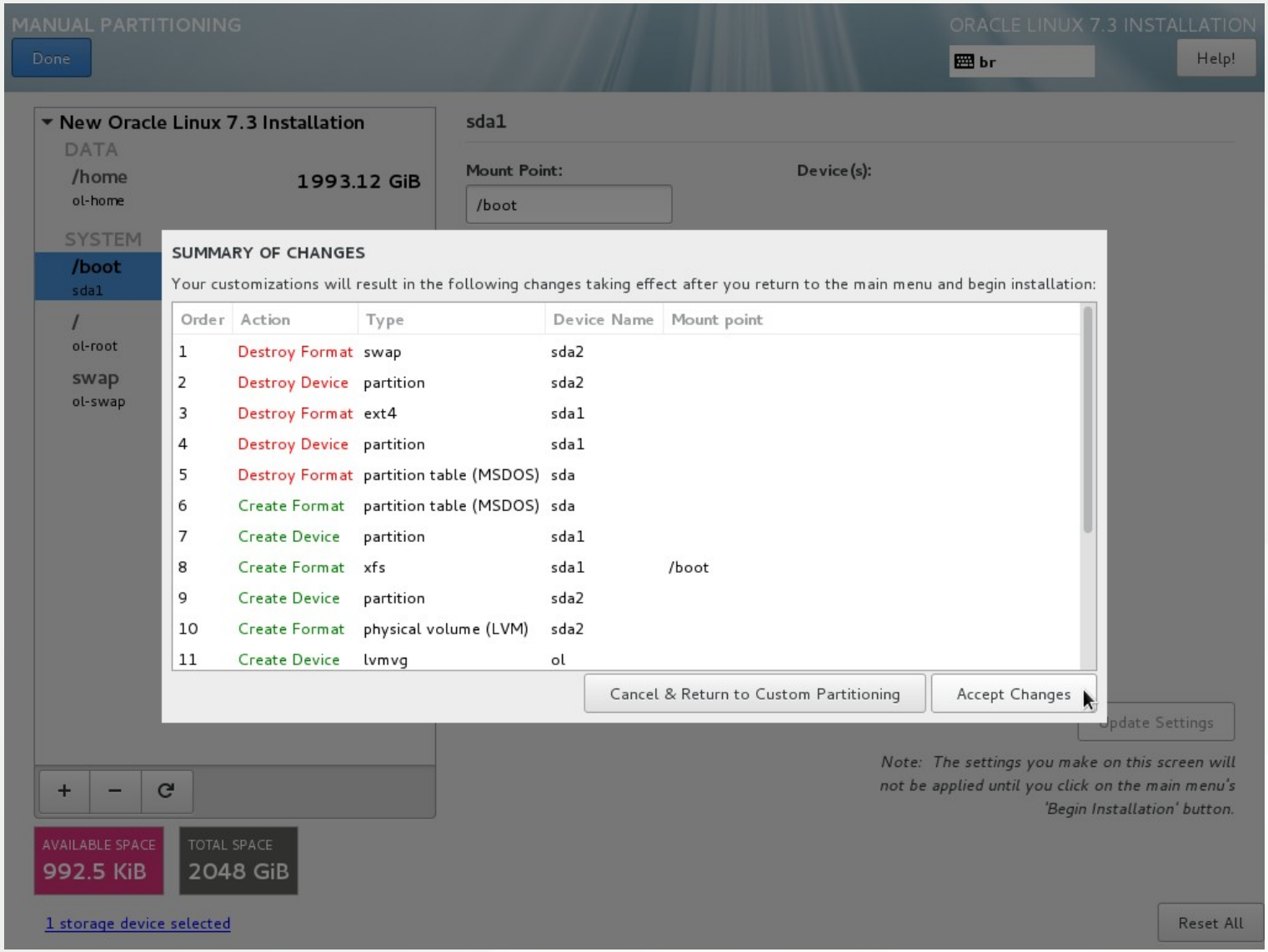
Chamado 01 - Continuação



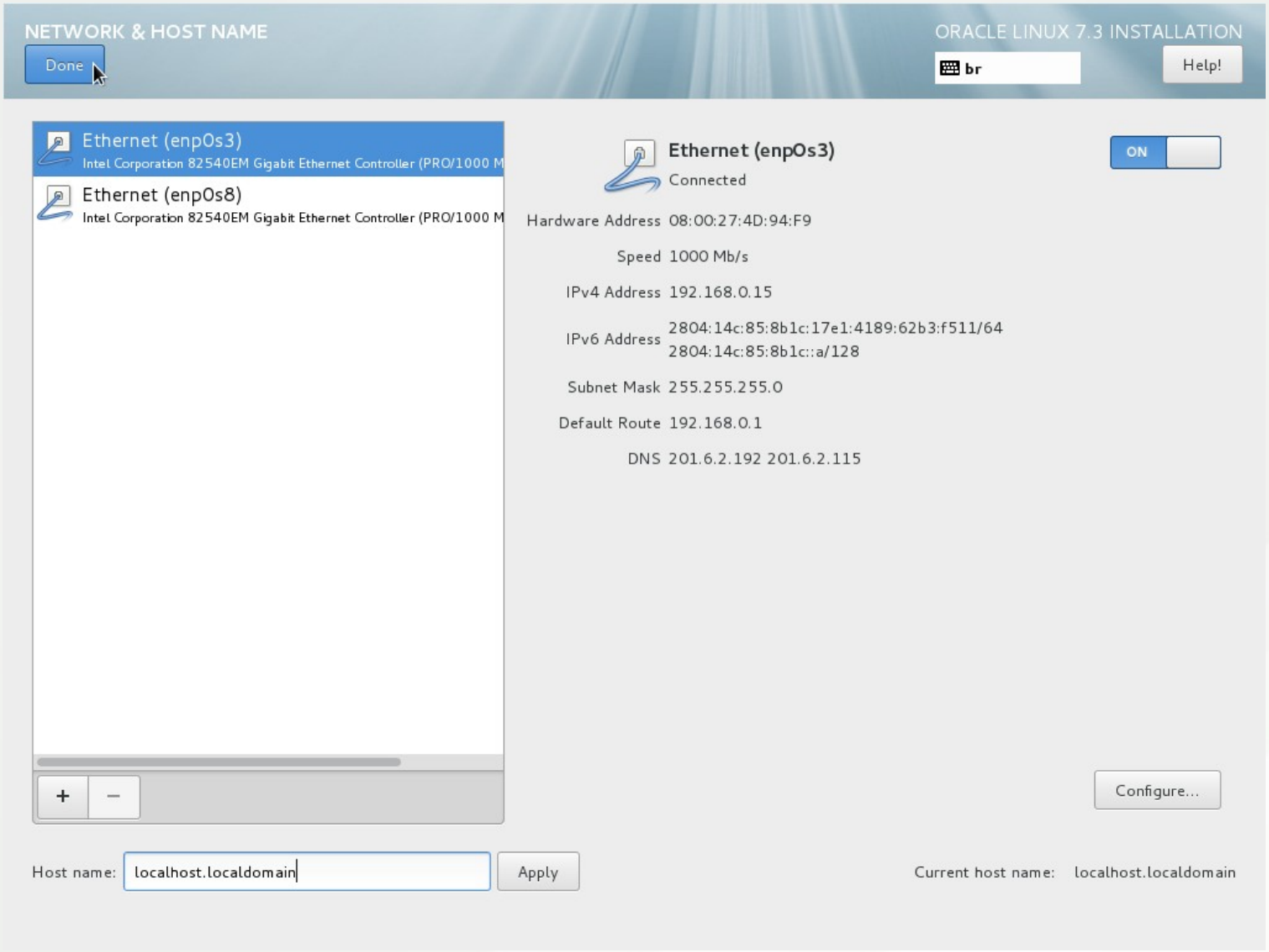
Chamado 01 - Continuação



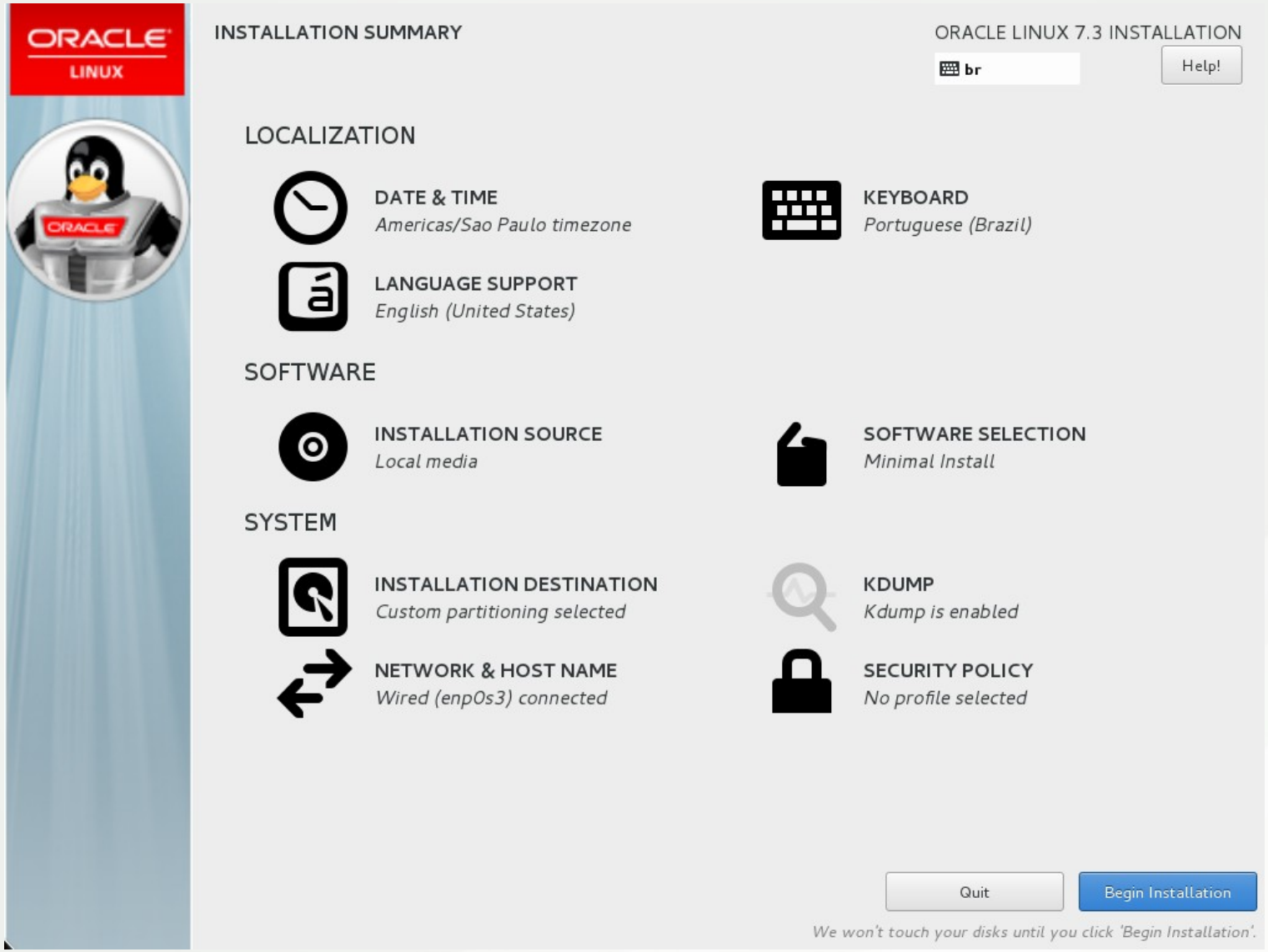
Chamado 01 - Continuação



Chamado 01 - Continuação



Chamado 01 - Continuação



Chamado 01 - Continuação

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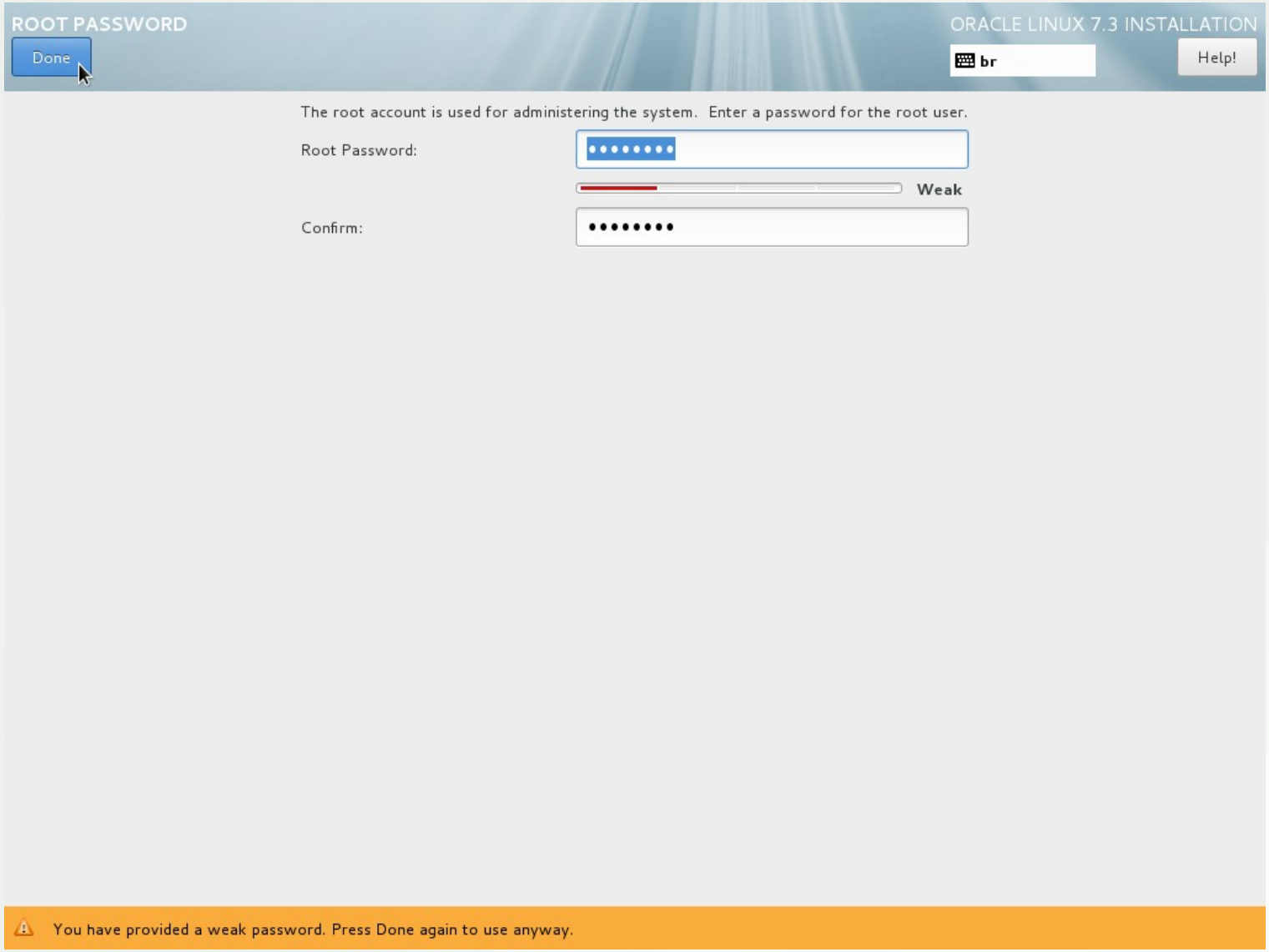

Chamado 01 - Continuação

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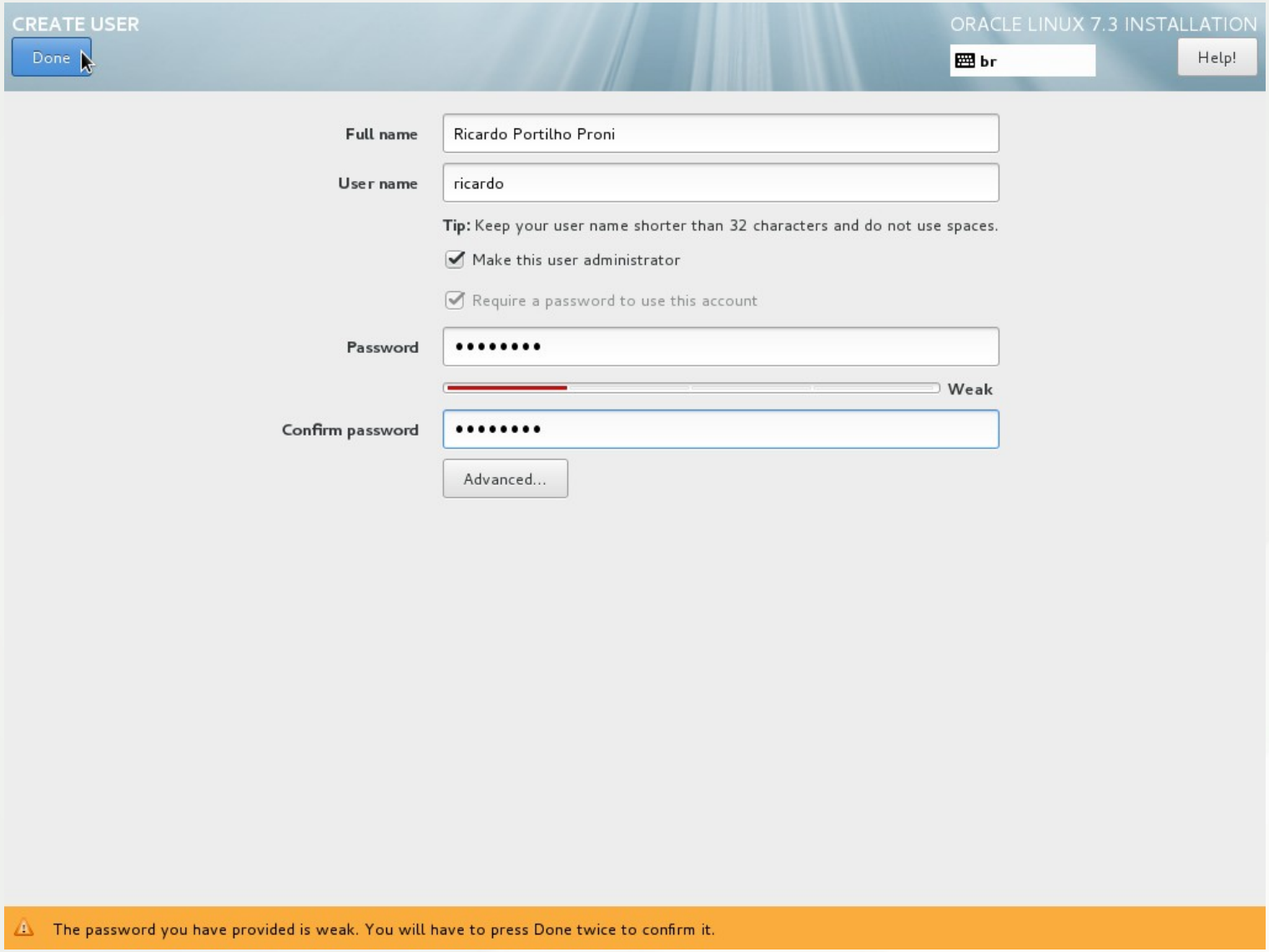
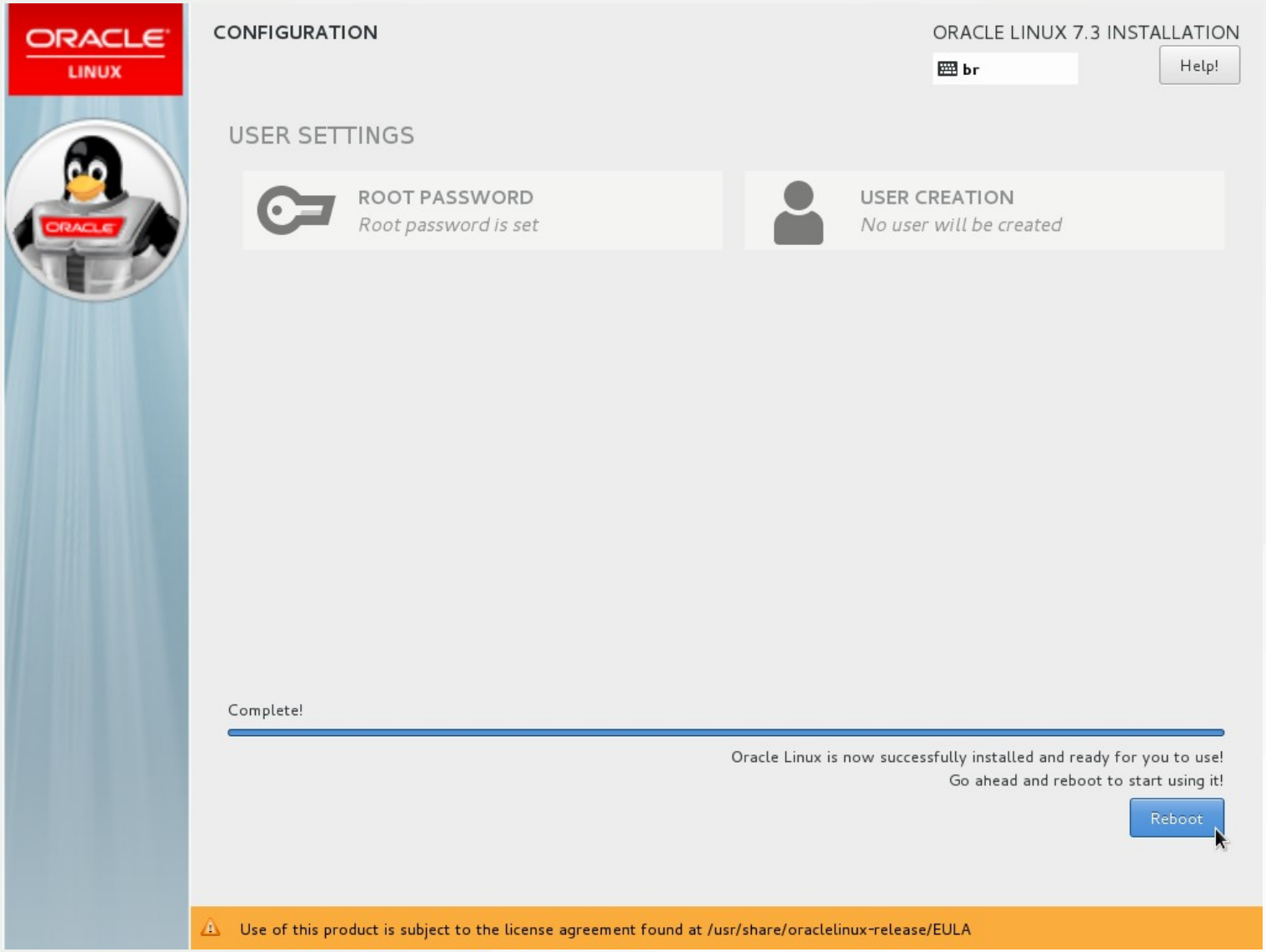


Chamado 01 - Continuação



Chamado 02

***Atualizar Linux*.**

Requisitos:
A atualização dos pacotes deve ser feita até os mais recentes.

Procedimento:

```
$ sudo yum -y update
$ sudo reboot
```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Chamado 03

Alterar hostname.

Requisitos:
Hostname: nerv01.localdomain

Procedimento:

```
$ sudo nmtui
```


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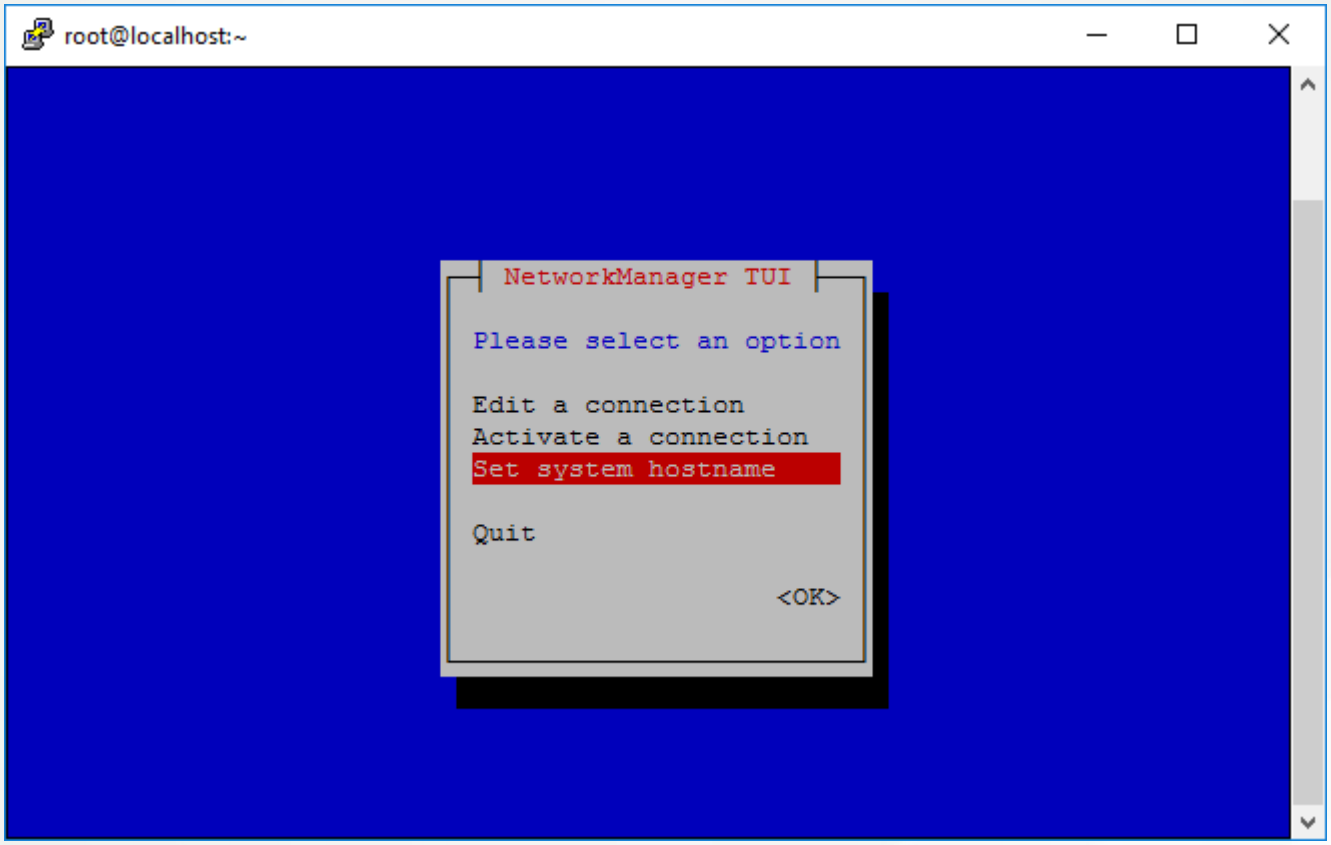
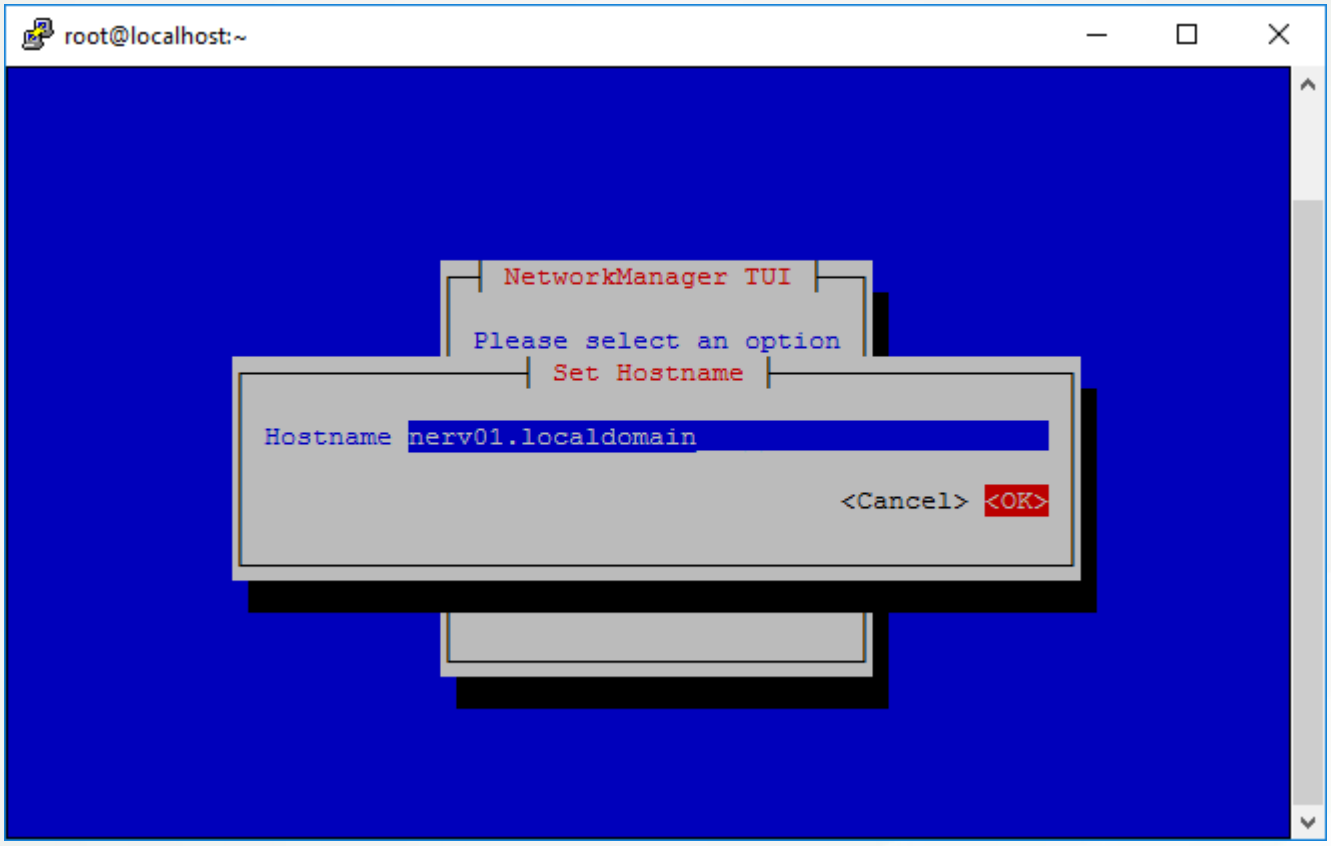
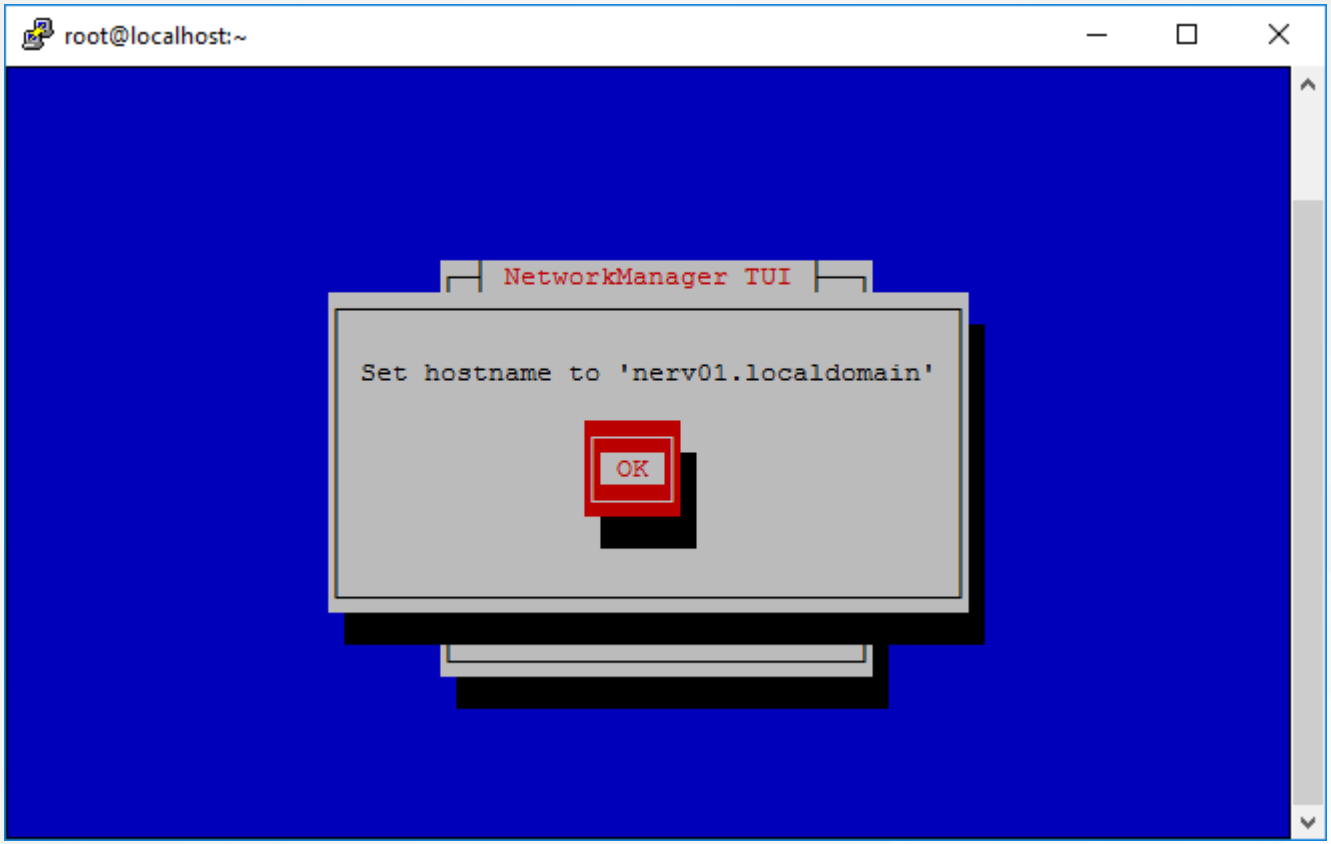
Chamado 03 - Continuação



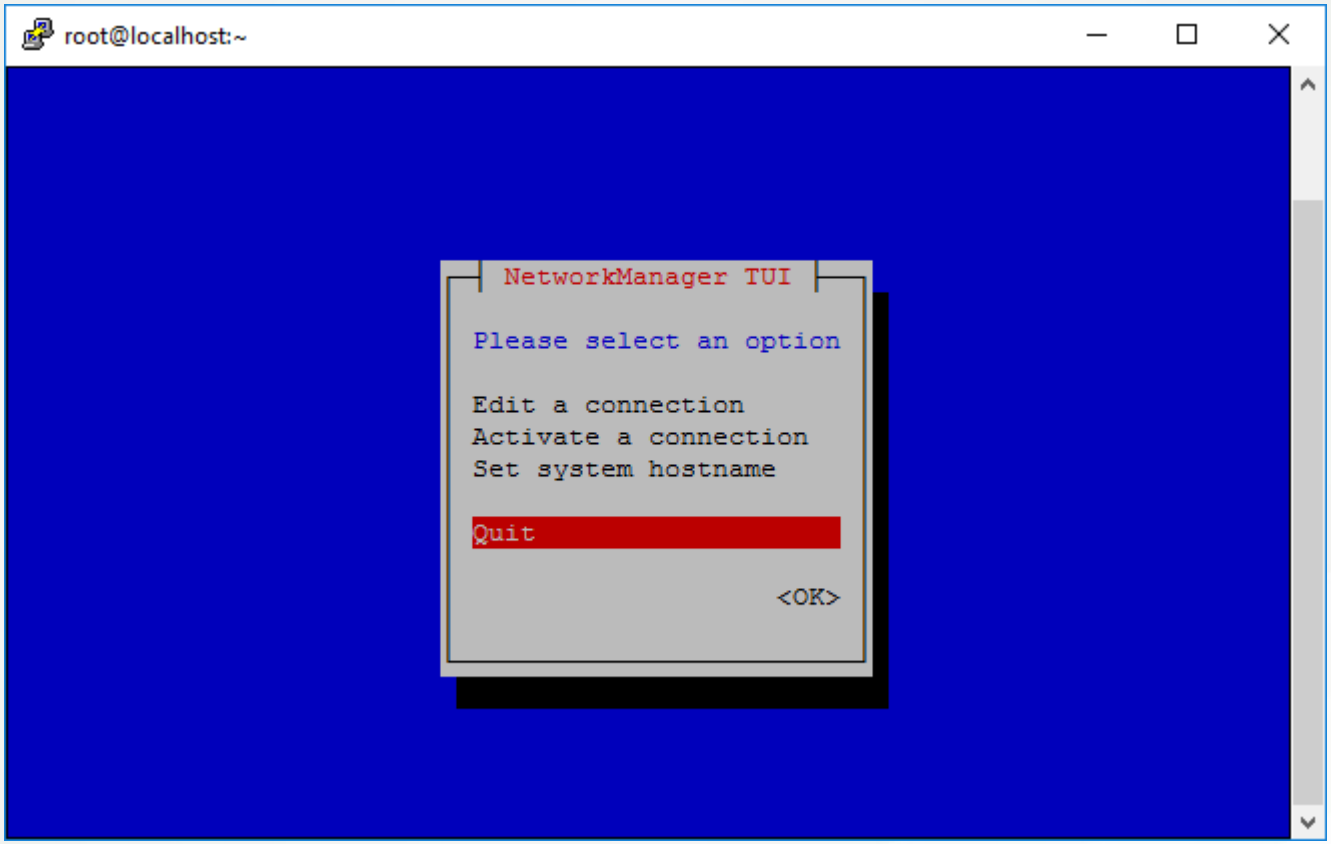
Chamado 03 - Continuação



Chamado 03 - Continuação



Chamado 03 - Continuação



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Chamado 04

Implementar IP Fixo.

Requisitos:
Placa de rede pública:
IP: 192.168.15.101/24
Gateway: 192.168.15.1
DNS servers: 192.168.15.201 e 8.8.8.8
Search domains: localdomain

Placa de rede privada:
IP: 192.168.1.101/24

Procedimento:

```
$ sudo nmtui
```


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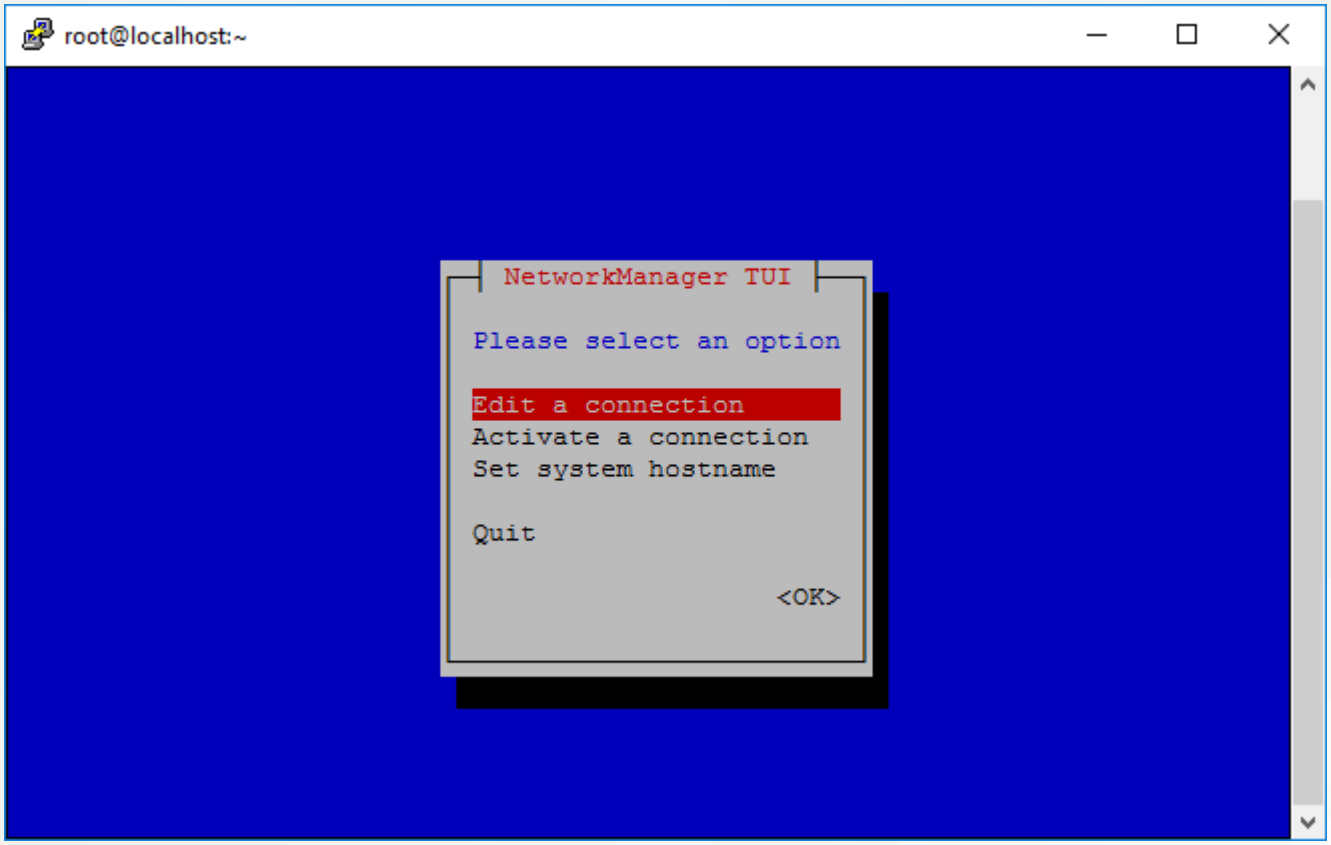
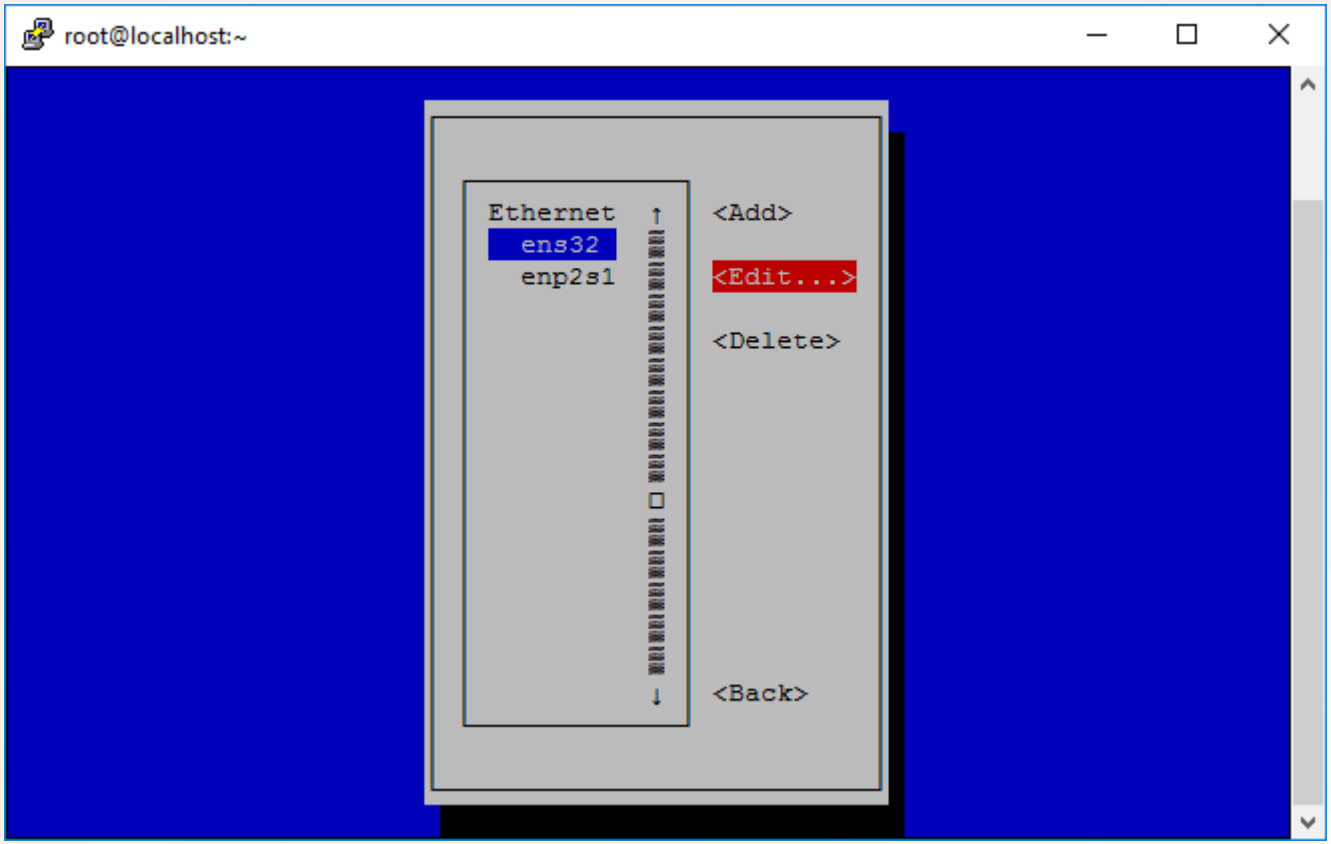
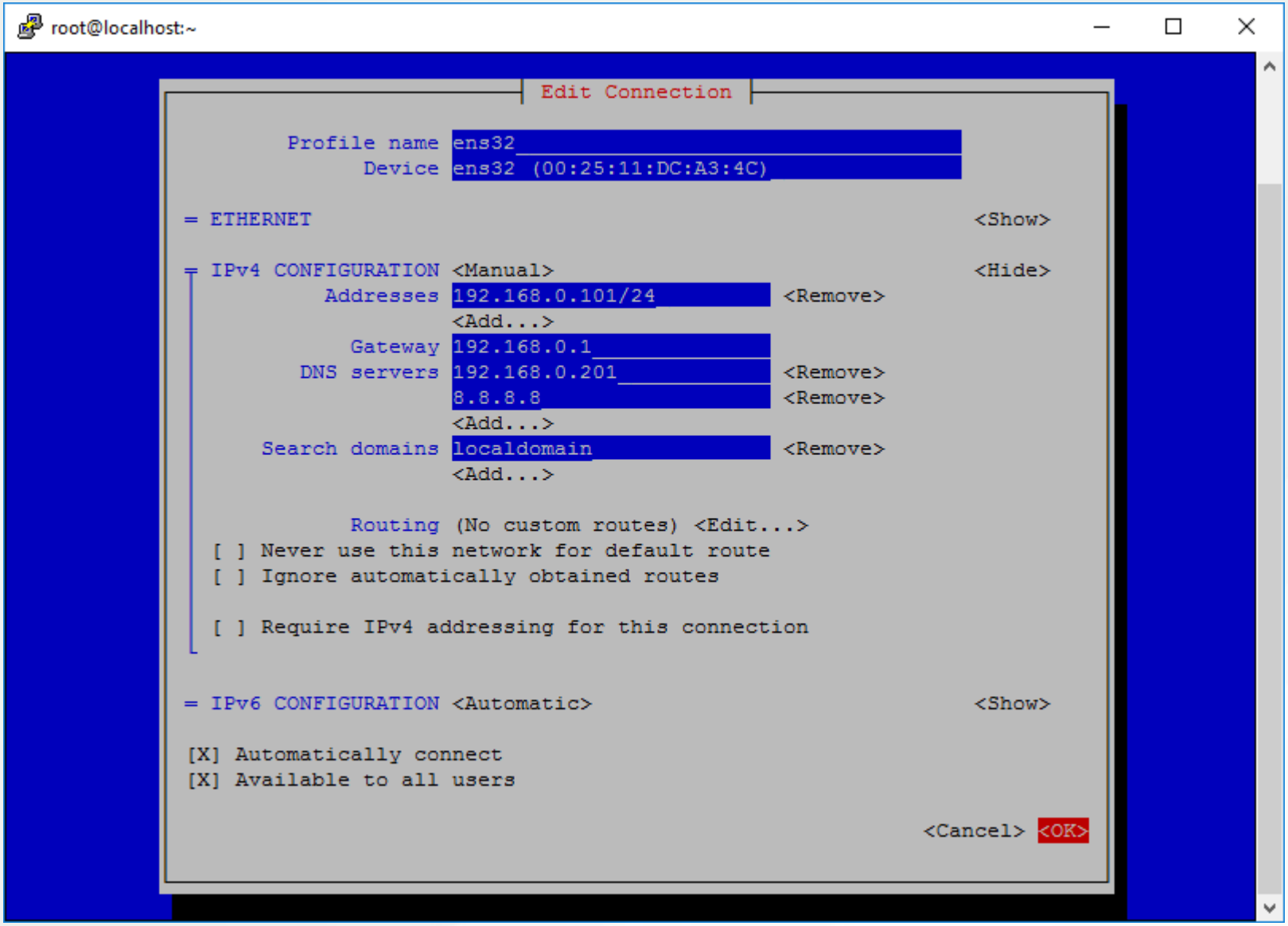
Chamado 04 - Continuação



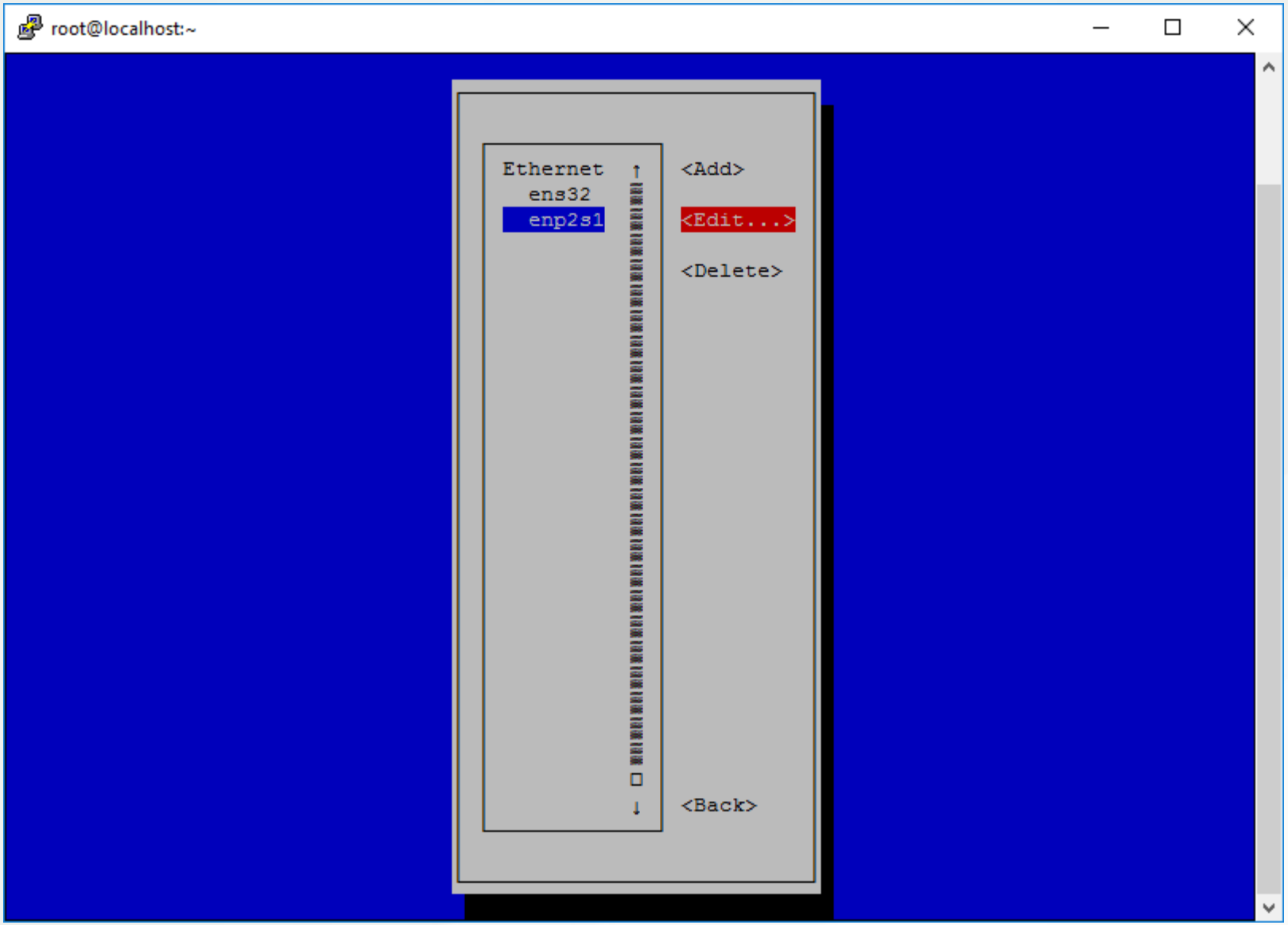
Chamado 04 - Continuação



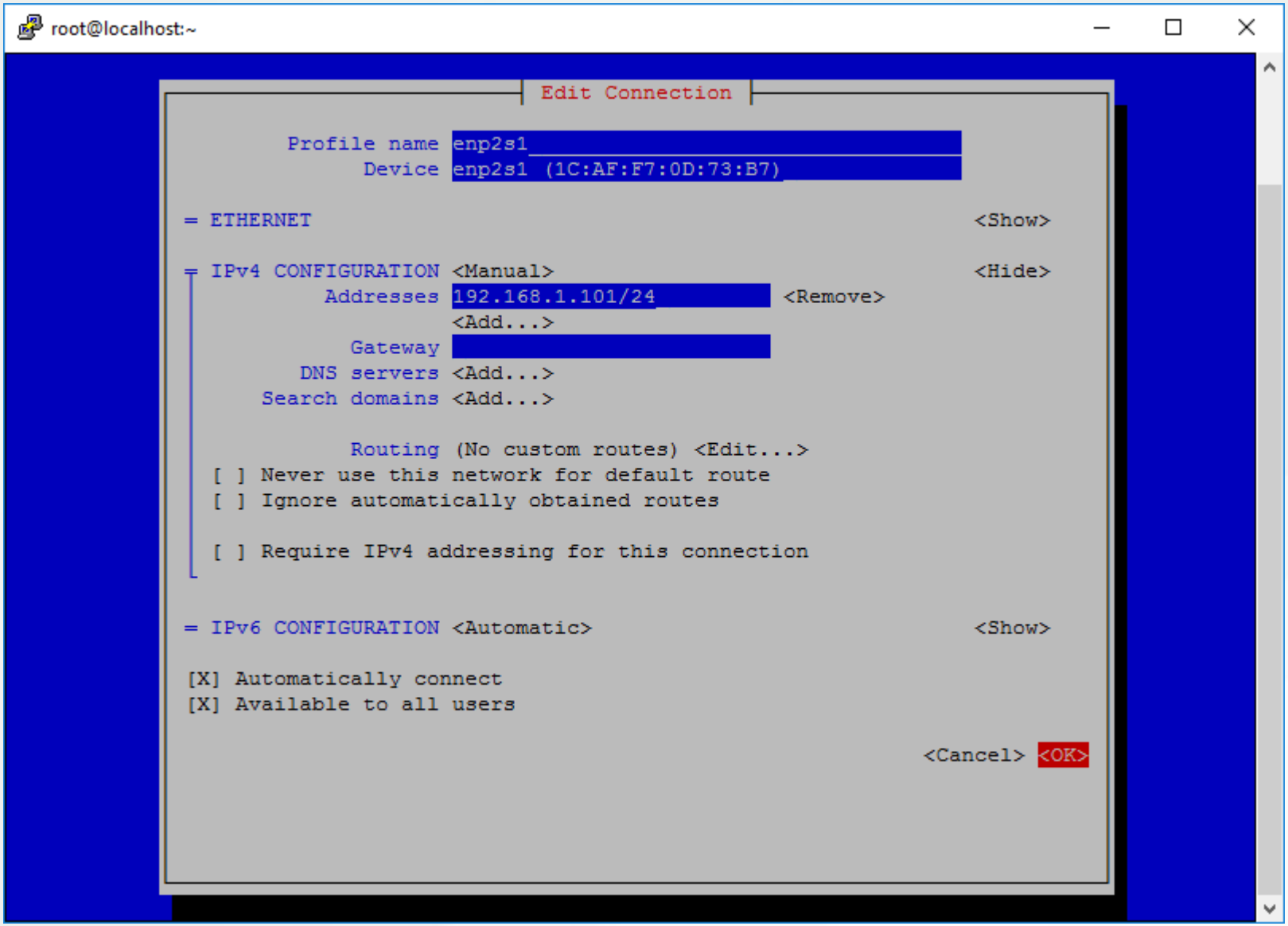
Chamado 04 - Continuação



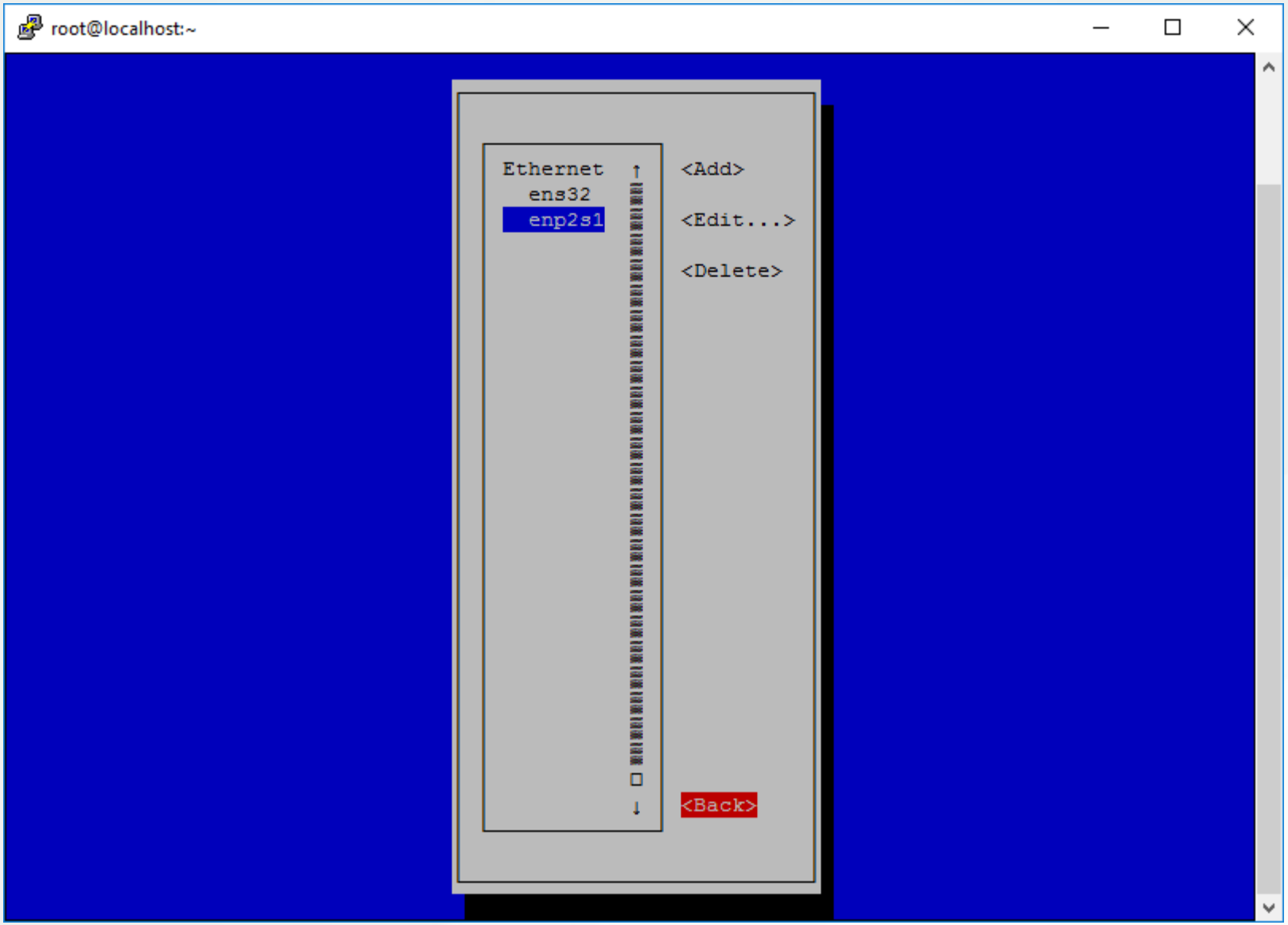
Chamado 04 - Continuação



Chamado 04 - Continuação



Chamado 04 - Continuação



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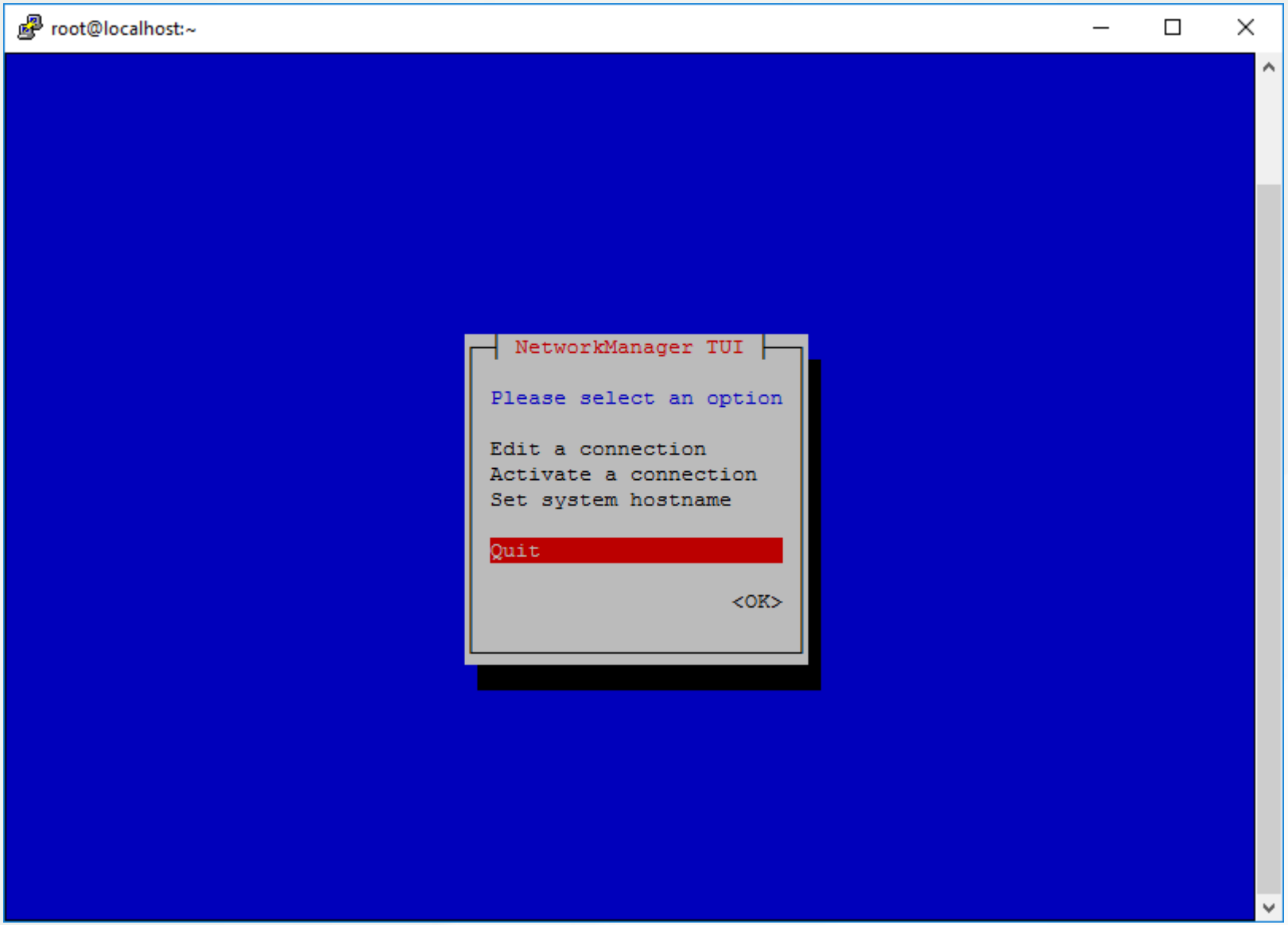
Chamado 04 - Continuação



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Chamado 05

Remover Logical Volume /home.

Requisitos:
Deixar o espaço utilizado pelo /home disponível.

Procedimento:

```
$ sudo df -h
$ sudo fdisk -l
$ sudo pvs
$ sudo lvs
# umount /home/
```

O que aconteceu?

```
# lvremove /dev/mapper/ol-home
# mkdir /home/ricardo
# chown ricardo:ricardo /home/ricardo
```

Comente a linha abaixo no arquivo /etc/fstab:

```
$ sudo vi /etc/fstab
...
# /dev/mapper/ol-home   /home   xfs    defaults    0 0
...
```


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Chamado 06

Aumentar SWAP.

Requisitos:
Aumentar para 16GB.

Procedimento:

```
$ sudo fdisk -l
$ sudo free
$ sudo swapoff -v /dev/mapper/ol-swap
$ sudo lvm lvresize /dev/mapper/ol-swap -L 16G
$ sudo mkswap /dev/mapper/ol-swap
$ sudo swapon /dev/mapper/ol-swap
$ sudo free
```


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Chamado 07

Criar /u01.

Requisitos:
Utilizar todo o espaço disponível.

Procedimento:

```
$ sudo fdisk -l
$ sudo lvdisplay
$ sudo lvcreate -l 100%FREE -n u01 ol
$ sudo fdisk -l
$ sudo lvdisplay
$ sudo mkfs.xfs /dev/mapper/ol-u01
$ sudo mkdir /u01
$ sudo mount /dev/mapper/ol-u01 /u01
$ df -h
```

Adicione a linha abaixo no arquivo /etc/fstab:

```
$ sudo vi /etc/fstab
...
/dev/mapper/ol-u01   /u01  xfs   defaults   0 0
...
```


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Chamado 08

Executar pré requisitos para o Oracle Database.

Requisitos:
O Oracle será instalado no Volume /u01.

Procedimento:

```
$ sudo groupadd -g 1100 oinstall
$ sudo groupadd -g 1200 dba
$ sudo groupadd -g 1300 oper
$ sudo useradd -u 1400 -g oinstall -G dba,oper oracle
$ sudo passwd oracle
$ sudo yum -y install oracle-rdbms-server-11gR2-preinstall
$ sudo mkdir -p /u01/app/oracle/product/11.2.0.3/db_1
$ sudo chown -R oracle:oinstall /u01
$ sudo chmod -R 775 /u01
$ sudo su - oracle
$ pwd
```

Chamado 09

Configurar o shell do usuário oracle.

Requisitos:

O shell deve ser configurado para instalar o Oracle Database 11.2.0.3.

Procedimento:

Acrescentar as linhas abaixo no final do arquivo /home/oracle/.bash_profile:

```
...
export TMP=/tmp
export TMPDIR=$TMP
export ORACLE_HOSTNAME=nerv01.localdomain
export ORACLE_UNQNAME=MERC
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0.3/db_1
export ORACLE_SID=MERC
export ORACLE_TERM=xterm
export PATH=/usr/sbin:$PATH
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
export CLASSPATH=$ORACLE_HOME/JRE:$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib
ulimit -u 16384 -n 65536
```


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Chamado 10

Instalar o Oracle Database Software.

Requisitos:
Instalar a penúltimo Patchset do 11gR2.

Procedimento:

```
$ sudo yum -y install unzip
$ sudo su - oracle
$ unzip -q p10404530_112030_Linux-x86-64_1of7.zip
$ unzip -q p10404530_112030_Linux-x86-64_2of7.zip
$ cp /home/oracle/database/response/db_install.rsp /home/oracle
```


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Chamado 10 - Continuação

Altere as linhas abaixo no arquivo /home/oracle/db_install.rsp:

```
...
oracle.install.option=INSTALL_DB_SWONLY
ORACLE_HOSTNAME=nerv01.localdomain
UNIX_GROUP_NAME=oinstall
INVENTORY_LOCATION=/u01/app/oraInventory
ORACLE_HOME=/u01/app/oracle/product/11.2.0.3/db_1
ORACLE_BASE=/u01/app/oracle
oracle.install.db.InstallEdition=EE
oracle.install.db.DBA_GROUP=dba
oracle.install.db.OPER_GROUP=oper
DECLINE_SECURITY_UPDATES=yes
...
```

Execute a instalação pelo Response File:

```
$ cd /home/oracle/database/
$ ./runInstaller -silent -responseFile /home/oracle/db_install.rsp
```

O que aconteceu?

Ao receber a mensagem "The installation of Oracle Database 11g was successful", execute:

```
$ sudo /u01/app/oraInventory/orainstRoot.sh
$ sudo /u01/app/oracle/product/11.2.0.3/db_1/root.sh
```

Chamado 11

Criar e iniciar o LISTENER.

Requisitos:
Utilizar a porta padrão.

Procedimento:

```
$ netca -silent -responsefile
/home/oracle/database/response/netca.rsp -orahome
/u01/app/oracle/product/11.2.0.3/db_1
$ lsnrctl status
```


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Chamado 12

Criar o Banco de Dados.

Requisitos:
Utilizar o nome MERC e a senha Nerv2019.

Procedimento:

```
$ dbca -silent -createDatabase -templateName New_Database.dbt -gdbName
MERC -sysPassword Nerv2019 -systemPassword Nerv2019 -emConfiguration NONE
-databaseType OLTP
```


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Chamado 13

Instalar o Oracle Database Software.

Requisitos:
Instalar a último Patchset do 11gR2.

Procedimento:

```
$ cd /home/oracle
$ rm -rf database/
$ unzip -q p13390677_112040_Linux-x86-64_1of7.zip
$ unzip -q p13390677_112040_Linux-x86-64_2of7.zip
$ cp /home/oracle/db_install.rsp /home/oracle/db_install-11.2.0.3.rsp
$ cp /home/oracle/database/response/db_install.rsp /home/oracle
```


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Chamado 13 - Continuação

Altere as linhas abaixo no arquivo /home/oracle/db_install.rsp:

```
...
oracle.install.option=INSTALL_DB_SWONLY
ORACLE_HOSTNAME=nerv01.localdomain
UNIX_GROUP_NAME=oinstall
INVENTORY_LOCATION=/u01/app/oraInventory
ORACLE_HOME=/u01/app/oracle/product/11.2.0.4/db_1
ORACLE_BASE=/u01/app/oracle
oracle.install.db.InstallEdition=EE
oracle.install.db.DBA_GROUP=dba
oracle.install.db.OPER_GROUP=oper
DECLINE_SECURITY_UPDATES=true
...
```

Execute a instalação pelo Response File:

```
$ cd /home/oracle/database/
$ ./runInstaller -silent -responseFile /home/oracle/db_install.rsp
```

Ao receber a mensagem “The installation of Oracle Database 11g was successful”, execute:

```
$ sudo /u01/app/oracle/product/11.2.0.4/db_1/root.sh
```


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Chamado 14

Executar UPGRADE do Oracle Database.

Requisitos:
Executar UPGRADE para a última versão do 11g.

Procedimento:

```
SQL> @/u01/app/oracle/product/11.2.0.4/db_1/rdbms/admin/utlu112i.sql
SQL> PURGE DBA_RECYCLEBIN;
SQL> EXECUTE DBMS_STATS.GATHER_DICTIONARY_STATS;
SQL> SHUTDOWN IMMEDIATE;
$ lsnrctl stop
$ cp $ORACLE_HOME/dbs/spfileMERC.ora /u01/app/oracle/product/11.2.0.4/db_1/dbs/
$ cp $ORACLE_HOME/network/admin/listener.ora /u01/app/oracle/product/11.2.0.4/db_1/
network/admin
$ export ORACLE_HOME=/u01/app/oracle/product/11.2.0.4/db_1
$ export PATH=$ORACLE_HOME/bin:$PATH
SQL> STARTUP UPGRADE
SQL> @?/rdbms/admin/catupgrd.sql
```

Altere a linha abaixo no arquivo /home/oracle/.bash_profile:

```
...
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0.4/db_1
...
```

Inicie o Oracle Database com a nova versão.

```
$ source /home/oracle/.bash_profile
$ lsnrctl start
SQL> STARTUP
```


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Chamado 15

Alterar parâmetros do glogin.sql.

Requisitos:
Adicionar configurações úteis ao SQL*Plus relacionadas com o trabalho do DBA.

Procedimento:
Adicione as linhas abaixo ao final no arquivo $ORACLE_HOME/sqlplus/admin/glogin.sql:

```
...
SET PAGESIZE 1000
SET LINESIZE 220
COLUMN NAME FORMAT A80
COLUMN FILE_NAME FORMAT A120
SET TIMING ON
SET TIME ON
SET SQLPROMPT '&_user@&_connect_identifier> '
DEFINE _EDITOR=vi
```

```
$ sqlplus / AS SYSDBA
```


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Chamado 16

Instalar ferramentas para DBA.

Requisitos:
Deve ser instalado o screen e o rlwrap.

Procedimento:

```
$ sudo yum -y install screen
$ sudo yum -y install https://dl.fedoraproject.org/pub/epel/epel-
release-latest-7.noarch.rpm
$ sudo yum -y install rlwrap

$ screen
$ Teste...
Control + A, Control + D
$ screen -rd

$ rlwrap sqlplus / AS SYSDBA
SQL> SELECT STATUS FROM V$INSTANCE;
SQL>
```

Chamado 17

Importar os dados das aplicações.

Requisitos:
Devem ser importados os dados da aplicação SOE.

Procedimento:

```
$ ls -ls SOE.dump
$ impdp SYSTEM/Nerv2019 DUMPFILE=SOE.dump LOGFILE=SOE-impdp.log
```

O que aconteceu?

```
SQL> CREATE DIRECTORY BACKUP AS '/home/oracle/';
$ impdp SYSTEM/Nerv2019 DIRECTORY=BACKUP DUMPFILE=SOE.dump LOGFILE=SOE-
impdp.log
```

O que aconteceu?

```
SQL> GRANT EXECUTE ON DBMS_LOCK TO SOE;
SQL> @?/rdbms/admin/utlrp.sql
SQL> ALTER USER SOE ACCOUNT UNLOCK IDENTIFIED BY SOE;
```


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Chamado 18

Criar TABLESPACEs para as aplicações.

Requisitos:
Deve ser criada a TABLESPACE SOE.
A TABLESPACE deve conter 1 DATAFILE em AUTOEXTEND.

Procedimento:

```
SQL> CREATE TABLESPACE SOE DATAFILE '/u01/app/oracle/oradata/MERC/soe01.dbf' SIZE
100M AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED;
```


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Chamado 19

Testar a conexão local e remota da aplicações.

Requisitos:
A conexão local deve funcionar.
A conexão remota deve funcionar.

Procedimento:
Teste a conexão local.
Crie uma entrada remota para o vizinho do sentido horário no arquivo /u01/app/oracle/product/11.2.0.4/db_1/network/admin/tnsnames.ora, e teste.

```
VIZINHO =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = nerv02.localdomain)(PORT = 1539))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = ORCL)
    )
  )

$ rlwrap sqlplus SOE/SOE
$ rlwrap sqlplus SOE/SOE@VIZINHO
```

O que aconteceu?

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Chamado 20

Implantar Firewall.

Requisitos:
Devem ser liberadas as portas de SSH e Oracle.

Procedimento:

```
$ sudo yum -y install firewalld
$ sudo firewall-cmd --zone=public --add-port=22/tcp --permanent
$ sudo firewall-cmd --zone=public --add-port=1521/tcp --permanent

$ sudo systemctl enable firewalld
$ sudo systemctl status firewalld

$ sudo systemctl stop firewalld
$ sudo systemctl status firewalld

$ sudo systemctl start firewalld
$ sudo systemctl status firewalld
```


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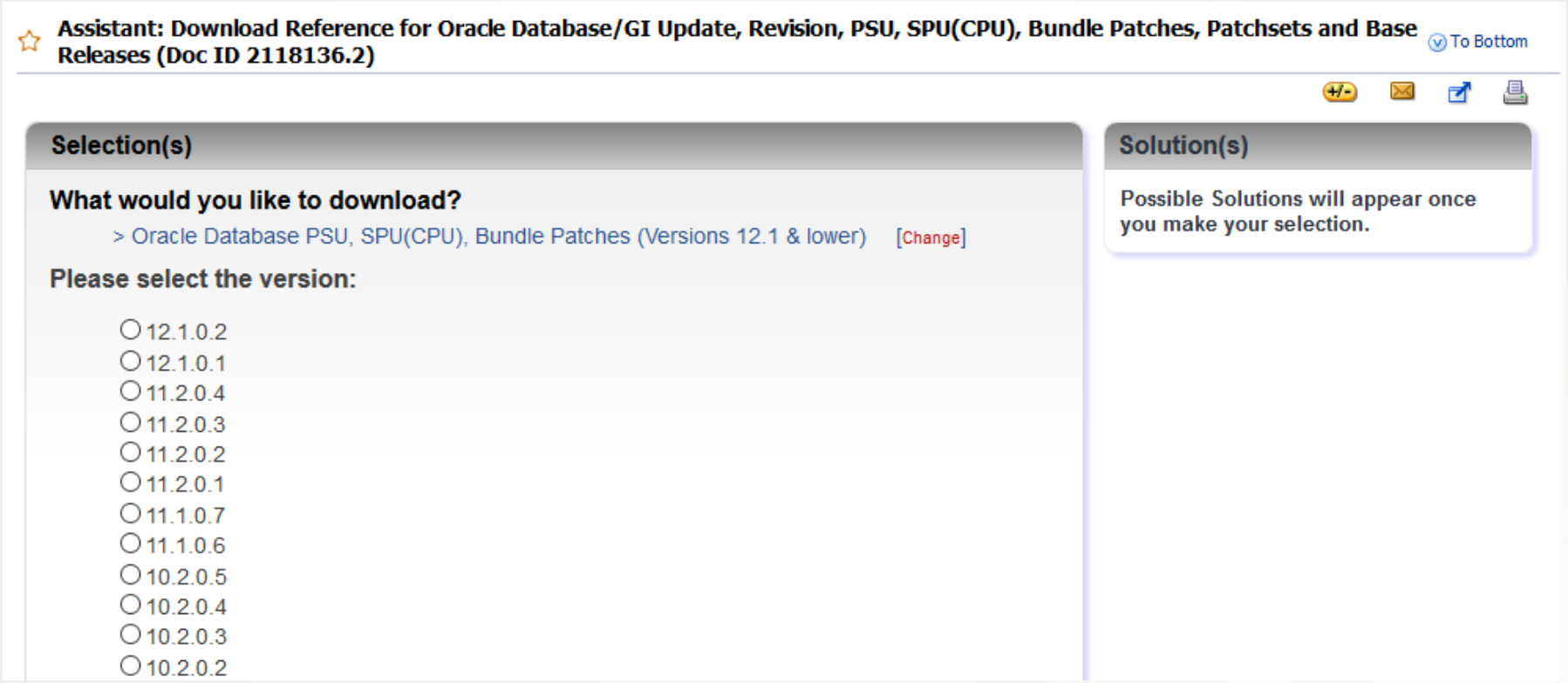
Chamado 21

Instalar Patchset Update.

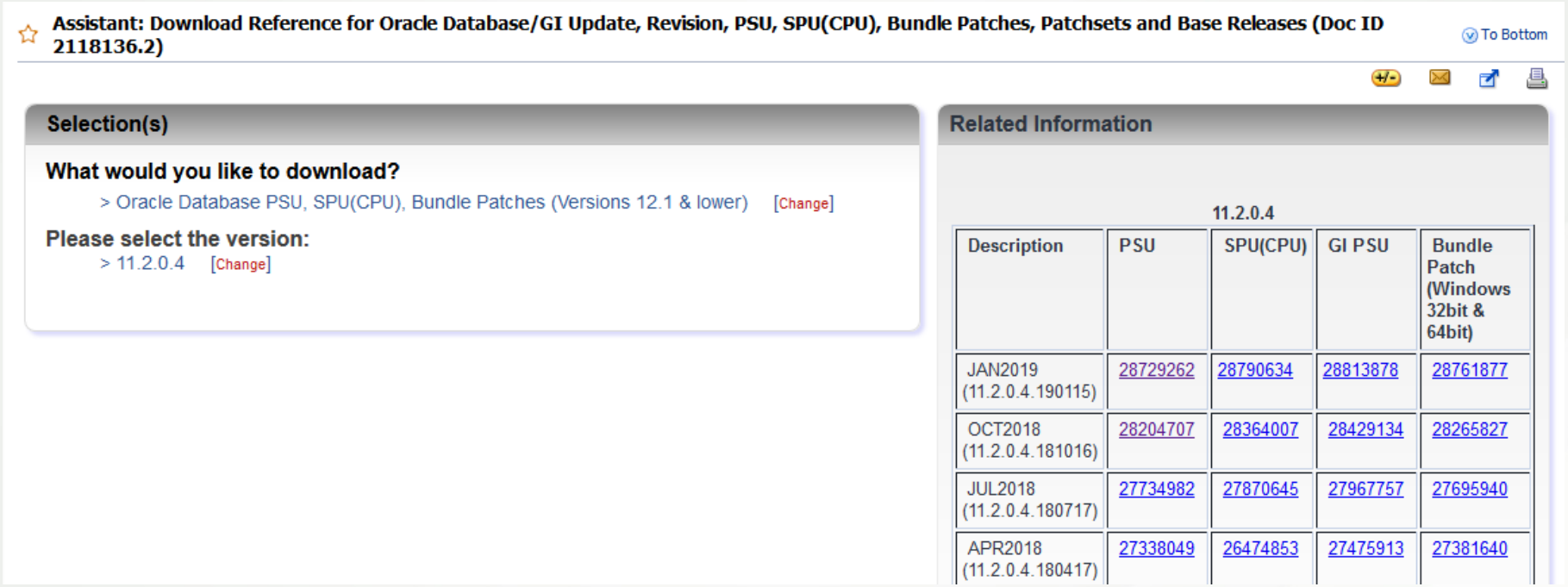
Requisitos:
Deve ser instalado o último PSU (PatchSet Update) da versão em uso do Oracle Database.

Procedimento:
Encontre e baixe o último Patch. Link: https://support.oracle.com/

Chamado 21 - Continuação



Chamado 21 - Continuação



Assistant: Download Reference for Oracle Database/GI Update, Revision, PSU, SPU(CPU), Bundle Patches, Patchsets and Base Releases (Doc ID 2118136.2)

To Bottom

Selection(s)

What would you like to download?

> Oracle Database PSU, SPU(CPU), Bundle Patches (Versions 12.1 & lower) [Change]

Please select the version:

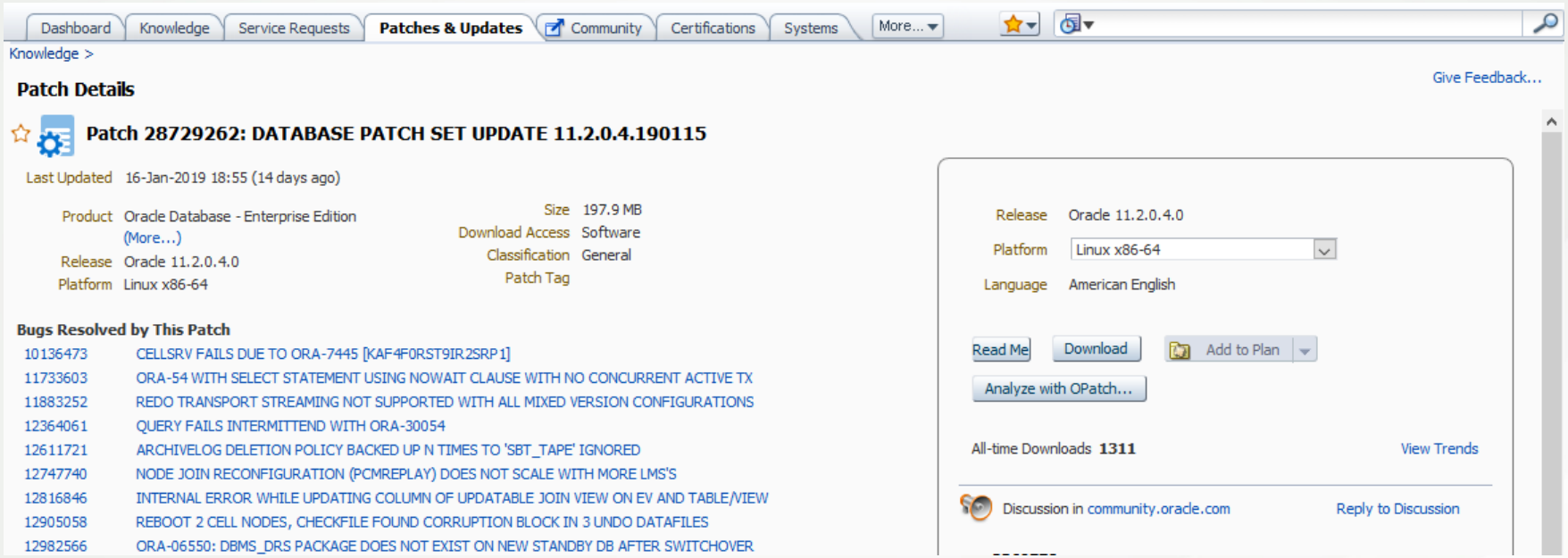
> 11.2.0.4 [Change]

Related Information

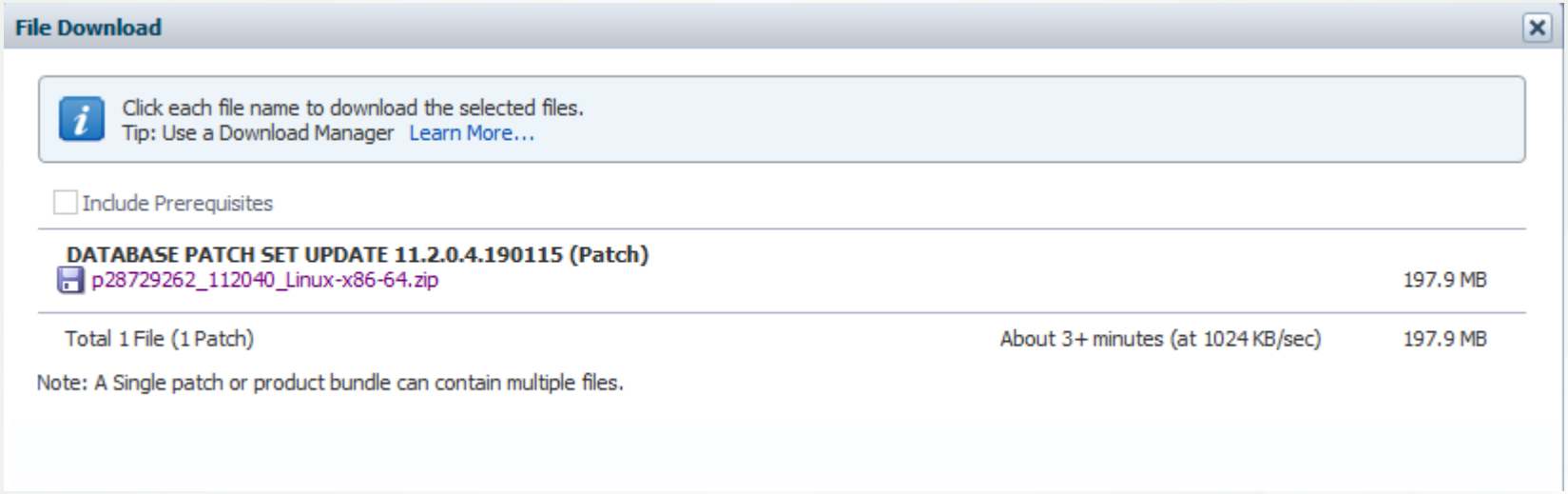
11.2.0.4

Description	PSU	SPU(CPU)	GI PSU	Bundle Patch (Windows 32bit & 64bit)
JAN2019 (11.2.0.4.190115)	28729262	28790634	28813878	28761877
OCT2018 (11.2.0.4.181016)	28204707	28364007	28429134	28265827
JUL2018 (11.2.0.4.180717)	27734982	27870645	27967757	27695940
APR2018 (11.2.0.4.180417)	27338049	26474853	27475913	27381640

Chamado 21 - Continuação

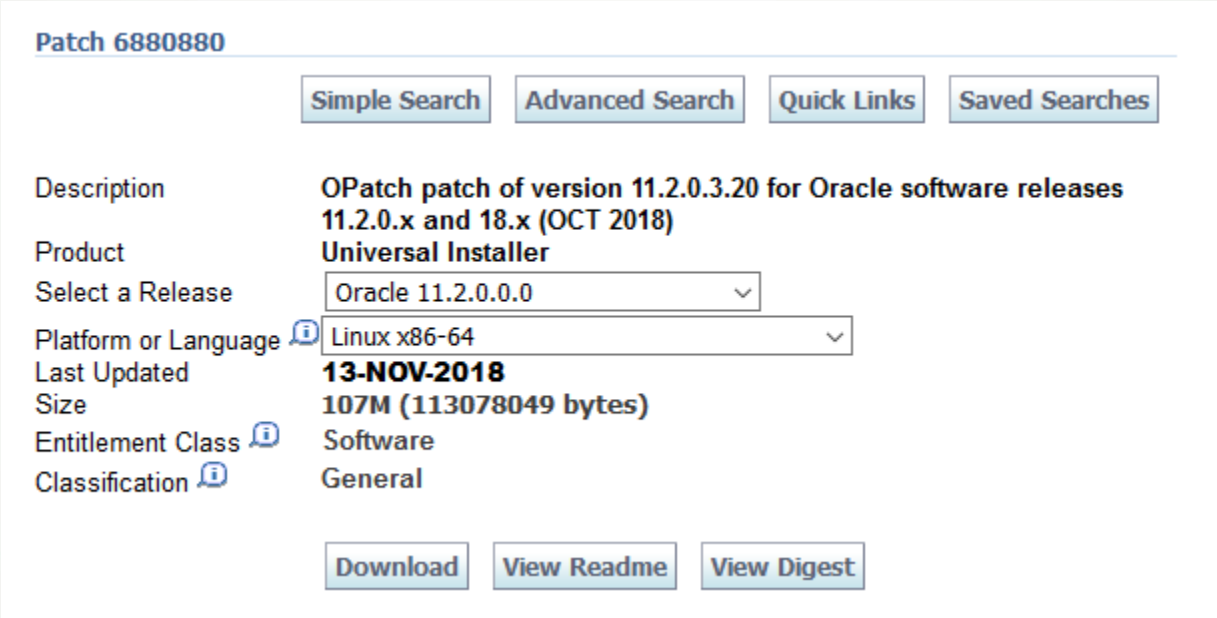


Chamado 21 - Continuação



Chamado 21 - Continuação

Baixe o último OPatch.
Link: https://updates.oracle.com/download/6880880.html



Chamado 21 - Continuação

Procedimento:

```
SQL> SHUTDOWN IMMEDIATE;
$ cd /home/oracle
$ unzip -q p6880880_112000_Linux-x86-64.zip
$ mv $ORACLE_HOME/OPatch/ $ORACLE_HOME/OPatch.BACKUP
$ mv /home/oracle/OPatch $ORACLE_HOME
$ unzip -q p28729262_112040_Linux-x86-64.zip
$ cd 28729262
$ $ORACLE_HOME/OPatch/ocm/bin/emocmrsp
    Email address/User Name:
        <ENTER>
    Do you wish to remain uninformed of security issues ([Y]es, [N]o) [N]:  Y
        Y <ENTER>

$ $ORACLE_HOME/OPatch/opatch apply -ocmrf ocm.rsp
```

O que aconteceu?

```
$ cd $ORACLE_HOME/rdbms/admin
SQL> STARTUP
SQL> @catbundle.sql psu apply
$ lsnrctl start
$ $ORACLE_HOME/OPatch/opatch lsinventory
```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Chamado 22

Criar SCHEMA de teste.

Requisitos:
O SCHEMA SOE deve ser duplicado para SOE_TESTE, em TABLESPACE também separada.

Procedimento:

```
$ mkdir /u01/dump
SQL> CREATE OR REPLACE DIRECTORY TESTE AS '/u01/dump';
$ expdp SYSTEM/Nerv2019 SCHEMAS=SOE DIRECTORY=TESTE DUMPFILE=SOE.dump LOGFILE=SOE-
Import.log

$ impdp SYSTEM/Nerv2019 SCHEMAS=SOE DIRECTORY=TESTE DUMPFILE=SOE.dump LOGFILE=SOE-
Import.log REMAP_SCHEMA=SOE:SOE_TESTE REMAP_TABLESPACE=SOE:SOE_TESTE
```

O que aconteceu?

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Chamado 23

Mover os CONTROLFILEs para outro diretório.

Requisitos:
Os CONTROLFILEs devem ser movidos para o diretório /u01/11gR2/MERC.

Procedimento:

```
$ mkdir -p /u01/11gR2/MERC
SQL> SHOW PARAMETER CONTROL_FILES
SQL> ALTER SYSTEM SET
CONTROL_FILES='/u01/11gR2/MERC/control01.ctl','/u01/11gR2/MERC/control02.
ctl' SCOPE=SPFILE;
SQL> SHUTDOWN IMMEDIATE;

$ cp /u01/app/oracle/oradata/MERC/control01.ctl
/u01/11gR2/MERC/control01.ctl
$ cp /u01/app/oracle/fast_recovery_area/MERC/control02.ctl
/u01/11gR2/MERC/control02.ctl

SQL> STARTUP
$ rm /u01/app/oracle/oradata/MERC/control01.ctl
$ rm /u01/11gR2/MERC/control01.ctl
$ tail -f /u01/app/oracle/diag/rdbms/merc/MERC/trace/alert_MERC.log
```

O que aconteceu?

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Chamado 24

Adicionar um CONTROLFILE.

Requisitos:
Um CONTROLFILE deve adicionado no diretório /u01/11gR2/MERC.

Procedimento:

```
SQL> SHOW PARAMETER CONTROL_FILES
SQL> ALTER SYSTEM SET
CONTROL_FILES='/u01/11gR2/MERC/control01.ctl','/u01/11gR2/MERC/control02.
ctl','/u01/11gR2/MERC/control03.ctl' SCOPE=SPFILE;
SQL> SHUTDOWN IMMEDIATE;

$ cp /u01/11gR2/MERC/control01.ctl /u01/11gR2/MERC/control03.ctl

SQL> STARTUP
```


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Chamado 25

Mover os DATAFILEs.

Requisitos:
Os DATAFILEs devem ser movidos para o diretório /u01/11gR2/MERC.

Procedimento:

```
SQL> SELECT FILE_NAME FROM DBA_DATA_FILES;
SQL> SHUTDOWN IMMEDIATE;
$ cp -v /u01/app/oracle/oradata/MERC/*.dbf /u01/11gR2/MERC/

SQL> STARTUP MOUNT;
SQL> ALTER DATABASE RENAME FILE '/u01/app/oracle/oradata/MERC/system.dbf'
TO '/u01/11gR2/MERC/system.dbf';
...
```

O que aconteceu?

```
SQL> ALTER DATABASE OPEN;
```


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Chamado 26

Multiplexar os grupos de REDO LOGs.

Requisitos:
Cada grupo de REDO LOGs deve conter dois membros.

Procedimento:

```
SQL> COLUMN MEMBER FORMAT A50
SQL> SELECT GROUP#, MEMBER FROM V$LOGFILE;

SQL> ALTER DATABASE ADD LOGFILE MEMBER
'/u01/app/oracle/oradata/MERC/redo01a.log' TO GROUP 1;
SQL> ALTER DATABASE ADD LOGFILE MEMBER
'/u01/app/oracle/oradata/MERC/redo02a.log' TO GROUP 2;
SQL> ALTER DATABASE ADD LOGFILE MEMBER
'/u01/app/oracle/oradata/MERC/redo03a.log' TO GROUP 3;

SQL> SELECT GROUP#, MEMBER FROM V$LOGFILE;
```


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Chamado 27

Mover os REDO LOGs.

Requisitos:
Os REDO LOGs devem ser movidos para o diretório /u01/11gR2/MERC.

Procedimento:

```
SQL> SELECT MEMBER FROM V$LOGFILE;
SQL> ALTER DATABASE ADD LOGFILE
('/u01/11gR2/MERC/redo04a.log','/u01/11gR2/MERC/redo04b.log') SIZE 52428800;
SQL> ALTER DATABASE ADD LOGFILE
('/u01/11gR2/MERC/redo05a.log','/u01/11gR2/MERC/redo05b.log') SIZE 52428800;
SQL> ALTER DATABASE ADD LOGFILE
('/u01/11gR2/MERC/redo06a.log','/u01/11gR2/MERC/redo06b.log') SIZE 52428800;

SQL> SELECT * FROM V$LOG;
SQL> ALTER SYSTEM SWITCH LOGFILE;
SQL> ALTER SYSTEM SWITCH LOGFILE;
SQL> ALTER SYSTEM SWITCH LOGFILE;
SQL> ALTER SYSTEM CHECKPOINT;
SQL> SELECT * FROM V$LOG;
SQL> ALTER DATABASE DROP LOGFILE GROUP 1;
SQL> ALTER DATABASE DROP LOGFILE GROUP 2;
SQL> ALTER DATABASE DROP LOGFILE GROUP 3;

SQL> SELECT * FROM V$LOG;
SQL> SELECT GROUP#, MEMBER FROM V$LOGFILE;
```


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Chamado 28

Mover os TEMPFILEs.

Requisitos:
Os TEMPFILEs devem ser movidos para o diretório /u01/11gR2/MERC.

Procedimento:

```
SQL> SELECT FILE_NAME FROM DBA_TEMP_FILES;
SQL> ALTER DATABASE TEMPFILE '/u01/app/oracle/oradata/MERC/temp01.dbf'
OFFLINE;
$ cp /u01/app/oracle/oradata/MERC/temp01.dbf /u01/11gR2/MERC/
SQL> ALTER DATABASE RENAME FILE '/u01/app/oracle/oradata/MERC/temp01.dbf'
TO '/u01/11gR2/MERC/temp01.dbf';
SQL> ALTER DATABASE TEMPFILE '/u01/11gR2/MERC/temp01.dbf' ONLINE;
```


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Chamado 29

Recuperar a perda de todos os DATAFILEs.

Requisitos:
Deve ser testado o Backup em RMAN.

Procedimento:

```
$ mkdir /home/oracle/Backup
RMAN> SHUTDOWN IMMEDIATE;
RMAN> STARTUP MOUNT;
RMAN> BACKUP DATABASE TO DESTINATION '/home/oracle/Backup/';
RMAN> ALTER DATABASE OPEN;

$ rm /u01/11gR2/MERC/*.dbf

RMAN> SHUTDOWN ABORT;
```

O que aconteceu?

```
RMAN> STARTUP MOUNT;
RMAN> RESTORE DATABASE;
RMAN> RECOVER DATABASE;
RMAN> ALTER DATABASE OPEN RESETLOGS;
```


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Chamado 30

Recuperar a perda de todos os REDO LOGs.

Requisitos:
Deve-se confirmar a eficácia do procedimento de recuperação.

Procedimento:

```
$ rm /u01/11gR2/MERC/*.log
SQL> SELECT * FROM V$LOG;
SQL> ALTER DATABASE CLEAR LOGFILE GROUP 4;
SQL> ALTER DATABASE CLEAR LOGFILE GROUP 5;
SQL> ALTER DATABASE CLEAR LOGFILE GROUP 6;
```

Ao receber a mensagem abaixo:

```
SQL> ALTER DATABASE CLEAR LOGFILE GROUP 6;
ORA-01624: log 6 needed for crash recovery of instance MERC
(thread 1)
```

Execute:

```
SQL> ALTER SYSTEM SWITCH LOGFILE;
SQL> ALTER SYSTEM CHECKPOINT;
SQL> ALTER DATABASE CLEAR UNARCHIVED LOGFILE GROUP 6;
```

Chamado 31

Recuperar a perda de todo o banco de dados.

Requisitos:
Deve-se confirmar a eficácia do procedimento de recuperação.

Procedimento:

```
RMAN> SHUTDOWN IMMEDIATE;
RMAN> STARTUP MOUNT;
RMAN> BACKUP DATABASE TO DESTINATION '/home/oracle/Backup/';
RMAN> ALTER DATABASE OPEN;
RMAN> BACKUP CURRENT CONTROLFILE;

$ rm -rf /u01/11gR2/MERC/*.*
SQL> SHUTDOWN ABORT;
SQL> STARTUP NOMOUNT;
RMAN> RESTORE CONTROLFILE FROM '/u01/...';
RMAN> ALTER DATABASE MOUNT;
RMAN> RESTORE DATABASE;
RMAN> RECOVER DATABASE;
RMAN> ALTER DATABASE OPEN RESETLOGS;

RMAN> SHUTDOWN IMMEDIATE;
RMAN> STARTUP MOUNT;
RMAN> BACKUP DATABASE TO DESTINATION '/home/oracle/Backup/';
RMAN> ALTER DATABASE OPEN;
RMAN> BACKUP CURRENT CONTROLFILE;
```


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Chamado 32

Instalar o Oracle Database Software.

Requisitos:
Instalar o Oracle Database 12cR2.

Procedimento:

```
$ cd /home/oracle
$ rm -rf database/
$ unzip -q linuxx64_12201_database.zip
$ mv db_install.rsp db_install-11.2.0.4.rsp
$ cp /home/oracle/database/response/db_install.rsp /home/oracle
```

Altere as linhas abaixo no arquivo /home/oracle/db_install.rsp:

```
oracle.install.option=INSTALL_DB_SWONLY
UNIX_GROUP_NAME=oinstall
INVENTORY_LOCATION=/u01/app/oraInventory
ORACLE_HOME=/u01/app/oracle/product/12.2.0.1/db_1
ORACLE_BASE=/u01/app/oracle
oracle.install.db.InstallEdition=EE
oracle.install.db.OSDBA_GROUP=dba
oracle.install.db.OSOPER_GROUP=oper
DECLINE_SECURITY_UPDATES=true
```


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Chamado 32 - Continuação

Execute a instalação pelo Response File:

```
$ cd /home/oracle/database/
$ ./runInstaller -silent -responseFile /home/oracle/db_install.rsp
```

O que aconteceu?

Ao receber a mensagem "The installation of Oracle Database 12c was successful", execute:

```
$ sudo /u01/app/oracle/product/12.2.0.1/db_1/root.sh
```


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Chamado 33

Executar UPGRADE do Oracle Database.

Requisitos:
Executar UPGRADE para a última versão do 12c.

Procedimento:

```
$ $ORACLE_HOME/jdk/bin/java -jar /u01/app/oracle/product/12.2.0.1/db_1/rdbms/admin/
preupgrade.jar TERMINAL TEXT
SQL> @/u01/app/oracle/cfgtoollogs/MERC/preupgrade/preupgrade_fixups.sql
SQL> SHUTDOWN IMMEDIATE;
$ lsnrctl stop
$ cp $ORACLE_HOME/dbs/spfileMERC.ora /u01/app/oracle/product/12.2.0.1/db_1/dbs/
$ cp $ORACLE_HOME/network/admin/listener.ora /u01/app/oracle/product/12.2.0.1/db_1/
network/admin
$ cp /u01/app/oracle/product/11.2.0.4/db_1/sqlplus/admin/glogin.sql
/u01/app/oracle/product/12.2.0.1/db_1/sqlplus/admin
```


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Chamado 33 - Continuação

```
$ export ORACLE_HOME=/u01/app/oracle/product/12.2.0.1/db_1
$ export PATH=$ORACLE_HOME/bin:$PATH
SQL> STARTUP UPGRADE
$ cd $ORACLE_HOME/bin
$ ./dbupgrade
```

Altere a linha abaixo no arquivo /home/oracle/.bash_profile:

```
...
export ORACLE_HOME=$ORACLE_BASE/product/12.2.0.1/db_1
...
```

Inicie o Oracle Database com a nova versão.

```
$ source /home/oracle/.bash_profile
$ lsnrctl start
SQL> STARTUP
$ cd $ORACLE_HOME/rdbms/admin
$ $ORACLE_HOME/perl/bin/perl catcon.pl -n 1 -e -b utlrp -d '''.''' utlrp.sql
SQL> @/u01/app/oracle/cfgtoollogs/MERC/preupgrade/postupgrade_fixups.sql
```


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Chamado 34

Crie um banco CDB com um PDB.

Requisitos:
O CDB deve ter o nome MERCMT. O PDB deve ter o nome MERC.

Procedimento:

```
$ export ORACLE_SID=MERC
SQL> SHUTDOWN IMMEDIATE;
$ export ORACLE_SID=MERCMT
$ dbca -silent -createDatabase -templateName General_Purpose.dbc -gdbName
MERCMT -createAsContainerDatabase true -numberOfPDBs 0 -sysPassword
Nerv2019 -systemPassword Nerv2019 -characterSet AL32UTF8 -
automaticMemoryManagement false -memoryPercentage 50
```


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CDB Architecture

Deprecation of Non-CDB Architecture

Documentação 12cR1:

8.1.1 Deprecation of Non-CDB Architecture

The non-CDB architecture is deprecated in Oracle Database 12*c*, and may be desupported and unavailable in a release after Oracle Database 12*c* Release 2. Oracle recommends use of the CDB architecture.

Note:

There remain a small number of features that do not work with the CDB architecture (see README, section 2.2.1 "Features Restricted or Not Available for a Multitenant Container Database"). If you need these features, then continue to use the non-CDB architecture until your required feature works with the CDB architecture.

Documentação 12cR2:

Deprecation of Non-CDB Architecture

The non-CDB architecture was deprecated in Oracle Database 12*c*. It can be desupported and unavailable in a release after Oracle Database 12*c* Release 2.

Oracle recommends use of the CDB architecture.

Documentação 18c:

Deprecation of Non-CDB Architecture

The non-CDB architecture was deprecated in Oracle Database 12*c*. It can be desupported and unavailable in a release after Oracle Database 19*c* .

Oracle recommends use of the CDB architecture.

12cR2 CDB New Features

- Subset Standby
- Data Guard Broker PDB Migration or Failover
- Cross-Platform Import of a Pluggable Database into a Multitenant Container Database
- I/O Rate Limits for PDBs
- Heat Map and Automatic Data Optimization Support for CDBs
- PDB Character Set
- PDB Refresh
- Hints in CONTAINERS Query
- Parallel PDB Creation Clause
- PDB Archive Files (.pdb Files)
- Default Tablespace Clause
- Cloning a PDB
- Near Zero Downtime PDB Relocation
- Logical Standby Database to Support CDBs with PDBs with Different Character Sets
- LogMiner to Support CDBs with PDBs with Different Character Sets
- Support for PDBs with Different Character Sets, Time Zone File Versions, and Database Time Zones in a CDB
- Memory Resource Management
- Per-Process PGA Limits
- Performance Profiles and Mandatory PDB Profiles
- CDB-Level PDB Lockdown

12cR2 CDB New Features

- Application Root
- Proxy PDB
- Forwarding Connections to A New Address Based on Service
- Service-Level ACLs for TCP Protocol
- Flashback Pluggable Database
- Upgrading a CDB With One or More PDBs in a Single Operation
- Support for Thousands of Pluggable Databases for Each Multitenant Container Database
- Pluggable Database Lockdown Profiles Enhancements
- Pluggable Database Operating System Credentials
- Oracle Enterprise Manager Database Express (EM Express) Resource Manager Support
- EM Express: Simplifying Configuration for Multitenant Through Single Port Access
- EM Express: Performance Hub Enhancements
- Automatic Workload Repository (AWR) Support for a Pluggable Database (PDB)
- Selective PDB Upgrades
- AWR_PDB_AUTOFLUSH_ENABLED Initialization Parameter
- ENABLE_AUTOMATIC_MAINTENANCE_PDB Initialization Parameter
- AUTOTASK_MAX_ACTIVE_PDBS Initialization Parameter
- Global and Shared Connection Pool for Oracle Cloud and Multitenant Oracle Databases
- Prioritized Rebalancing
- Oracle Database Vault Common Realms and Command Rules for Oracle Multitenant

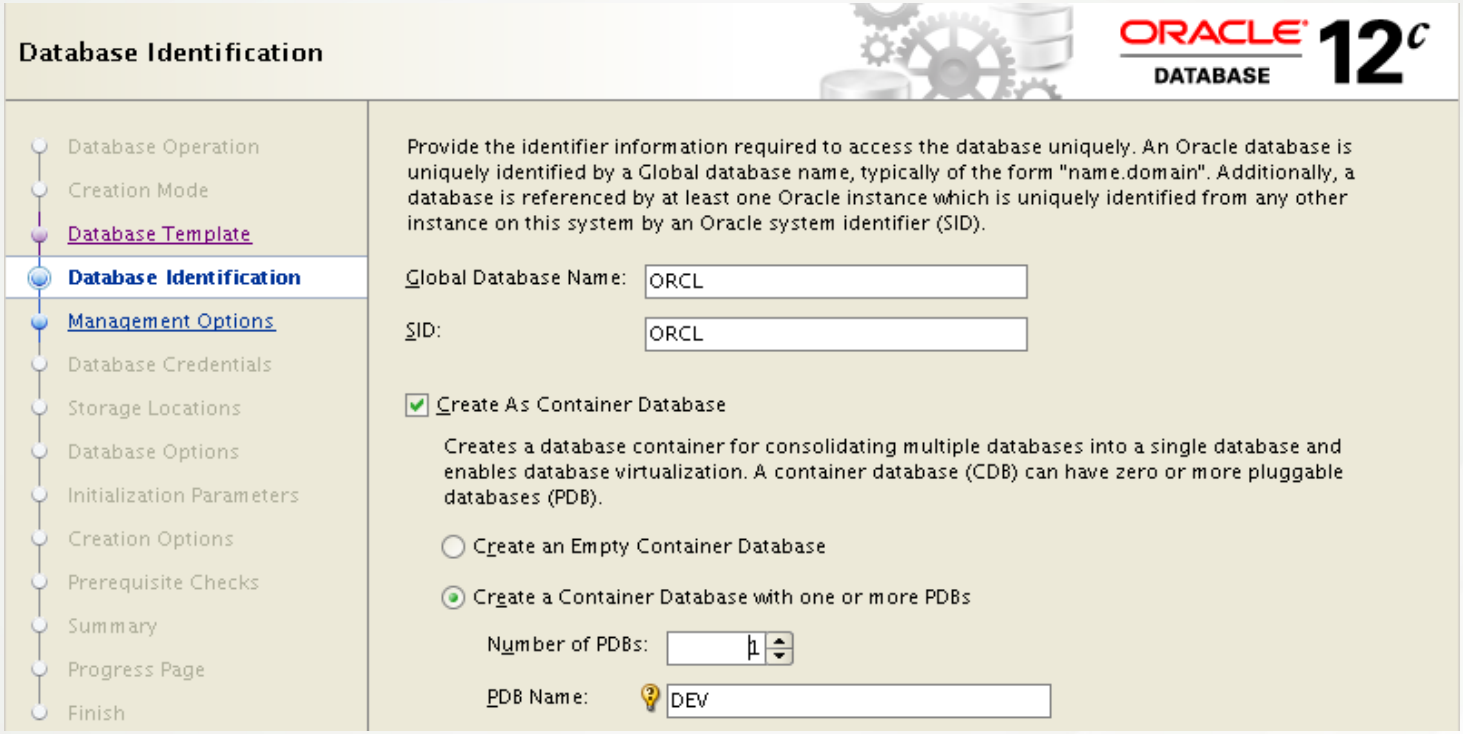
18c CDB New Features

- Server Draining ahead of relocating or stopping services or PDB
- Duplicate PDBs between encrypted and non-encrypted CDBs
- PDB backups usable after plugging in to a new CDB
- Backups from non-CDBs are usable after migration to CDB
- RMAN duplicate PDB into existing CDB
- Copying a PDB in an Oracle Data Guard Environment
- DBCA PDB Clone
- PDB Lockdown Profile Enhancements
- Refreshable PDB Switchover
- CDB Fleet Management
- PDB Snapshot Carousel
- ASM Database Cloning
- Ability to Create a Keystore for Each Pluggable Database

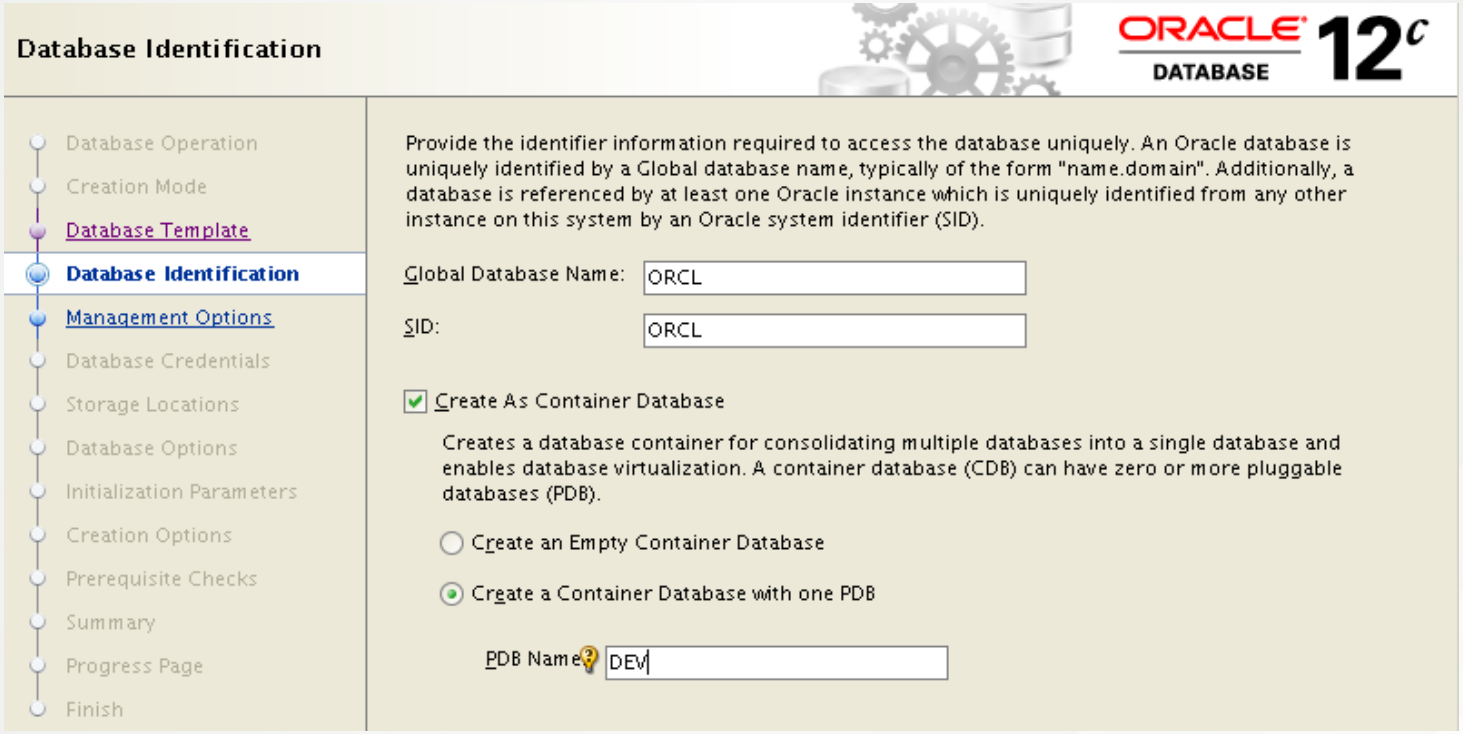
Option Multitenant

	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Database Products				
Oracle Database				
Standard Edition 2	350	77.00	17,500	3,850.00
Enterprise Edition	950	209.00	47,500	10,450.00
Personal Edition	460	101.20	-	-
Mobile Server	-	-	23,000	5,060.00
NoSQL Database Enterprise Edition	200	44	10,000	2,200.00
Enterprise Edition Options:				
Multitenant	350	77.00	17,500	3,850.00
Real Application Clusters	460	101.20	23,000	5,060.00
Real Application Clusters One Node	200	44.00	10,000	2,200.00
Active Data Guard	230	50.60	11,500	2,530.00
Partitioning	230	50.60	11,500	2,530.00
Real Application Testing	230	50.60	11,500	2,530.00
Advanced Compression	230	50.60	11,500	2,530.00
Advanced Security	300	66.00	15,000	3,300.00
Label Security	230	50.60	11,500	2,530.00
Database Vault	230	50.60	11,500	2,530.00

Multitenant - EE



Singletenant - SE2



Esse banco utiliza CDB Arquitecture?

```
08:27:38 SYS@ORCL> SELECT CDB FROM V$DATABASE;

CDB
---
YES

Elapsed: 00:00:00.01
08:27:45 SYS@ORCL>
```

Que Containers / PDBs este banco tem?

```
09:26:03 SYS@ORCL> SELECT CON_ID, NAME FROM V$CONTAINERS;

    CON_ID NAME
---------- ------------------------------
         1 CDB$ROOT
         2 PDB$SEED
         3 PROD

Elapsed: 00:00:00.00
09:26:05 SYS@ORCL>
```

```
08:31:04 SYS@ORCL> SELECT CON_ID, NAME FROM V$PDBS;

    CON_ID NAME
---------- ------------------------------
         2 PDB$SEED
         3 PROD

Elapsed: 00:00:00.00
```

Em que Container estou conectado?

```
[oracle@nerv06 ~]$ rlwrap sqlplus / AS SYSDBA

SQL*Plus: Release 12.2.0.1.0 Production on Sun Jul 23 09:09:53 2017

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


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

09:09:53 SYS@ORCL> SHOW CON_ID

CON_ID
------------------------------
1
09:09:58 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
09:10:00 SYS@ORCL>
```

Como conectar em um PDB? SET CONTAINER

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

09:12:25 SYS@ORCL> ALTER SESSION SET CONTAINER = PROD;

Session altered.

Elapsed: 00:00:00.06
09:12:30 SYS@ORCL> SHOW CON_ID

CON_ID
------------------------------
3
09:12:33 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
PROD
09:12:37 SYS@ORCL>
```

Como conectar em um PDB?

```
$ lsnrctl status
...
Services Summary...
Service "5397376af7702ac5e0536a00a8c0505d" has 1 instance(s).
  Instance "ORCL", status READY, has 1 handler(s) for this service...
Service "ORCL" has 1 instance(s).
  Instance "ORCL", status READY, has 1 handler(s) for this service...
Service "ORCLXDB" has 1 instance(s).
  Instance "ORCL", status READY, has 1 handler(s) for this service...
Service "prod" has 1 instance(s).
  Instance "ORCL", status READY, has 1 handler(s) for this service...
The command completed successfully
$
```

Como conectar em um PDB? tnsnames.ora

```
$ cat $ORACLE_HOME/network/admin/tnsnames.ora
...
ORCL =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = nerv06.localdomain)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = ORCL)
    )
  )

PROD =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = nerv06.localdomain)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = PROD)
    )
  )

...
$
```

Como conectar em um PDB? tnsnames.ora

```
[oracle@nerv06 ~]$ sqlplus SYSTEM/Nerv2017@PROD

SQL*Plus: Release 12.2.0.1.0 Production on Sun Jul 23 09:17:54 2017

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

Last Successful login time: Mon Jul 10 2017 10:34:33 -03:00

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

09:17:54 SYSTEM@PROD> SHOW CON_NAME

CON_NAME
------------------------------
PROD
09:18:00 SYSTEM@PROD>
```

Como conectar em um PDB? Easy Connect

```
[oracle@nerv06 ~]$ rlwrap sqlplus SYSTEM/Nerv2017@localhost:1521/PROD

SQL*Plus: Release 12.2.0.1.0 Production on Sun Jul 23 09:22:48 2017

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Last Successful login time: Sun Jul 23 2017 09:20:43 -03:00

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

09:22:48 SYSTEM@localhost:1521/PROD> SHOW CON_NAME

CON_NAME
------------------------------
PROD
09:22:51 SYSTEM@localhost:1521/PROD>
```

E agora, qual o nome da Instância? E do Banco?

```
09:28:20 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
09:28:24 SYS@ORCL> SELECT INSTANCE_NAME FROM V$INSTANCE;

INSTANCE_NAME
----------------
ORCL

Elapsed: 00:00:00.00
09:28:28 SYS@ORCL> SELECT NAME FROM V$DATABASE;

NAME
---------------------------------------
ORCL

Elapsed: 00:00:00.00
09:28:31 SYS@ORCL>
```

E agora, qual o nome da Instância? E do Banco?

```
09:30:48 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
PROD
09:30:50 SYS@ORCL> SELECT INSTANCE_NAME FROM V$INSTANCE;

INSTANCE_NAME
----------------
ORCL

Elapsed: 00:00:00.06
09:30:56 SYS@ORCL> SELECT NAME FROM V$DATABASE;

NAME
---------------------------------------
ORCL

Elapsed: 00:00:00.00
09:30:58 SYS@ORCL>
```

CDB e PDBs: STARTUP

```
ORACLE instance started.

Total System Global Area 2147483648 bytes
Fixed Size                  8794848 bytes
Variable Size             603983136 bytes
Database Buffers         1526726656 bytes
Redo Buffers                7979008 bytes
Database mounted.
Database opened.
10:04:30 SYS@ORCL> ALTER SESSION SET CONTAINER = PROD;

Session altered.

Elapsed: 00:00:00.00
10:04:42 SYS@ORCL> SELECT COUNT(*) FROM DBA_TABLES;
SELECT COUNT(*) FROM DBA_TABLES
                     *
ERROR at line 1:
ORA-01219: database or pluggable database not open: queries allowed on fixed table
or views only


Elapsed: 00:00:00.02
10:04:51 SYS@ORCL>
```

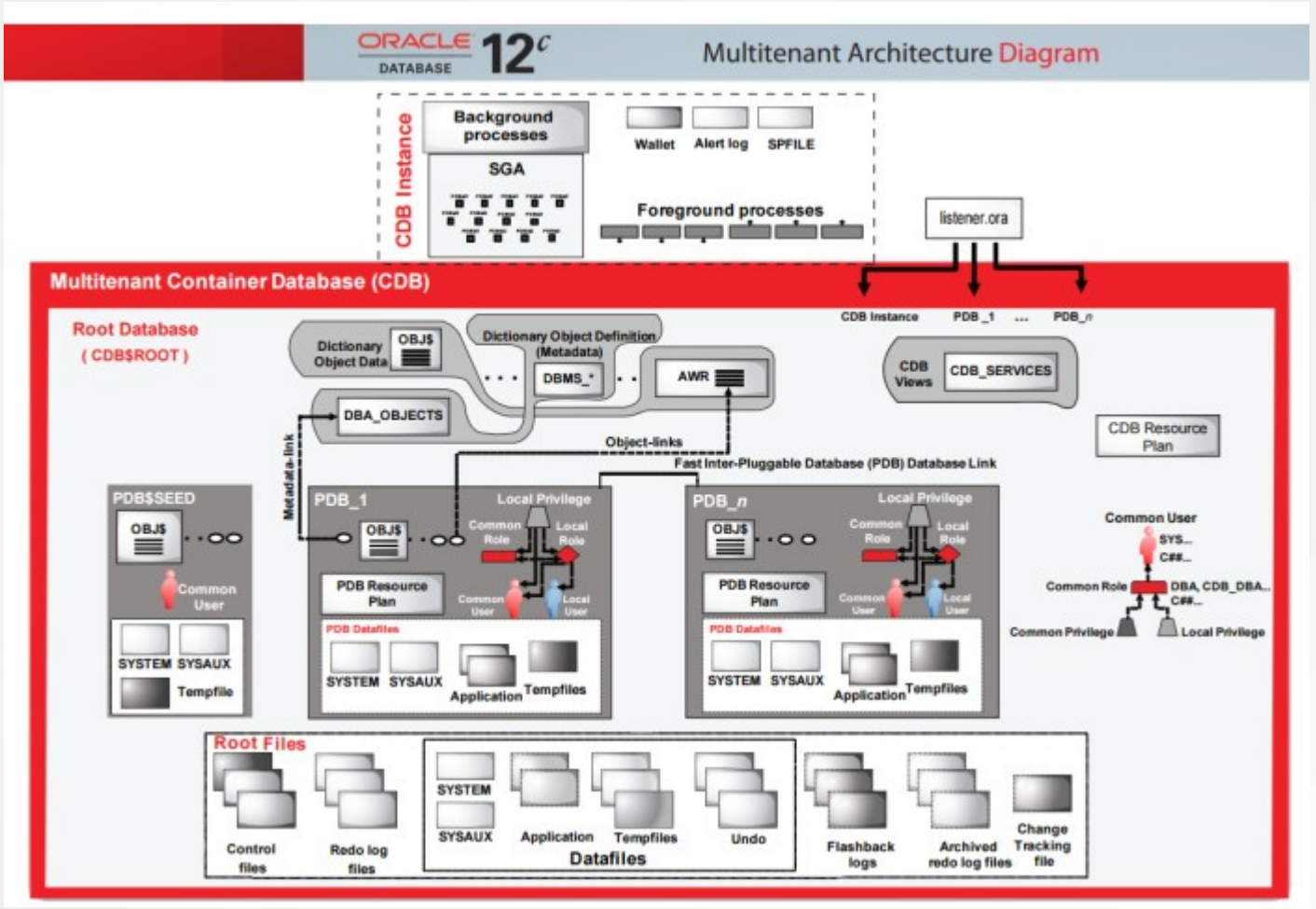
CDB e PDBs: STARTUP

```
10:09:03 SYS@ORCL> ALTER PLUGGABLE DATABASE PROD OPEN READ WRITE;

Pluggable database altered.

Elapsed: 00:00:02.01
10:09:07 SYS@ORCL> ALTER PLUGGABLE DATABASE PROD SAVE STATE;

Pluggable database altered.

Elapsed: 00:00:00.08
10:09:13 SYS@ORCL> ALTER SESSION SET CONTAINER = PROD;

Session altered.

Elapsed: 00:00:00.03
10:09:18 SYS@ORCL> SELECT COUNT(*) FROM DBA_TABLES;

  COUNT(*)
----------
      1768

Elapsed: 00:00:00.22
10:09:21 SYS@ORCL>
```

Alert Log

```
2017-07-23T11:39:06.237614-03:00
ALTER SYSTEM SET workarea_size_policy='AUTO' SCOPE=BOTH;
2017-07-23T11:39:18.790181-03:00
PROD(3):ALTER SYSTEM SET workarea_size_policy='MANUAL' SCOPE=BOTH PDB='PROD';
2017-07-23T11:39:23.868266-03:00
DEV(5):ALTER SYSTEM SET workarea_size_policy='MANUAL' SCOPE=BOTH PDB='DEV';
```

Arquitetura



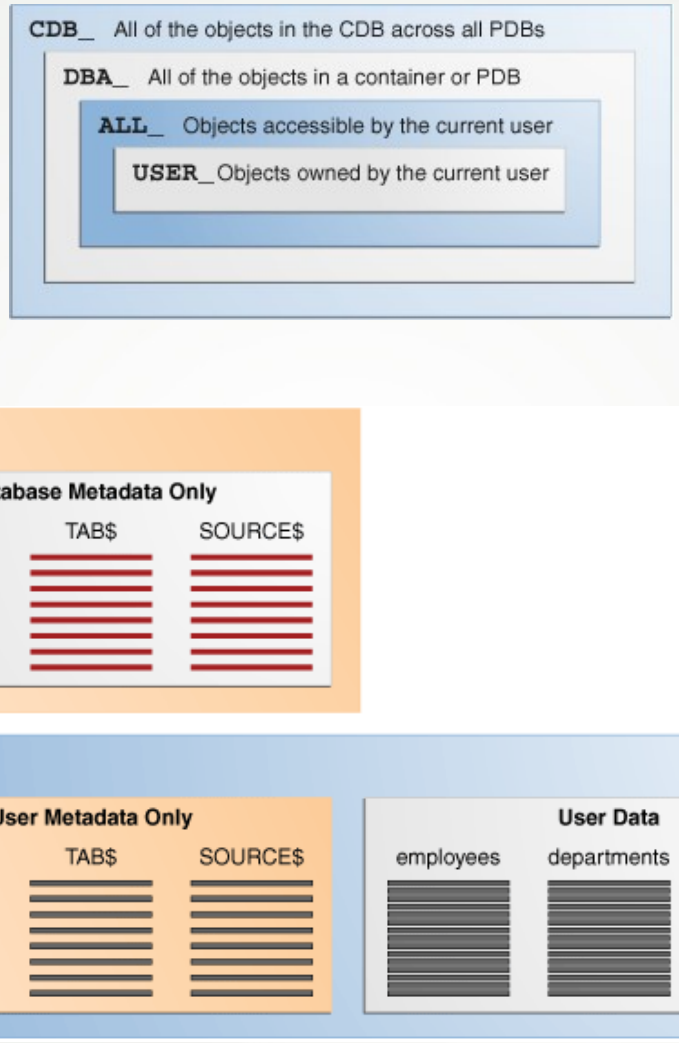
DATAFILEs

```
09:32:59 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
09:33:04 SYS@ORCL> SELECT FILE_NAME FROM DBA_DATA_FILES;

FILE_NAME
----------------------------------------------------
/u01/app/oracle/oradata/ORCL/system01.dbf
/u01/app/oracle/oradata/ORCL/sysaux01.dbf
/u01/app/oracle/oradata/ORCL/undotbs01.dbf
/u01/app/oracle/oradata/ORCL/users01.dbf

Elapsed: 00:00:00.01
09:33:06 SYS@ORCL>
```

DATAFILEs

```
09:34:17 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
PROD
09:34:19 SYS@ORCL> SELECT FILE_NAME FROM DBA_DATA_FILES;

FILE_NAME
--------------------------------------------------
/u01/app/oracle/oradata/ORCL/PROD/undotbs01.dbf
/u01/app/oracle/oradata/ORCL/PROD/sysaux01.dbf
/u01/app/oracle/oradata/ORCL/PROD/users01.dbf
/u01/app/oracle/oradata/ORCL/PROD/system01.dbf
/u01/app/oracle/oradata/ORCL/PROD/soe01.dbf
/u01/app/oracle/oradata/ORCL/PROD/shsb01.dbf
/u01/app/oracle/oradata/ORCL/PROD/shsbp01.dbf

7 rows selected.

Elapsed: 00:00:00.00
09:34:20 SYS@ORCL>
```

Dicionário de Dados



VIEWs

```
09:36:19 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
09:36:23 SYS@ORCL> SELECT COUNT(*) FROM DBA_TABLES;

  COUNT(*)
----------
      1724

Elapsed: 00:00:00.24
09:36:31 SYS@ORCL> SELECT COUNT(*) FROM CDB_TABLES;

  COUNT(*)
----------
      3492

Elapsed: 00:00:00.52
09:36:35 SYS@ORCL>
```

VIEWs

```
09:37:29 SYS@ORCL> ALTER SESSION SET CONTAINER = PROD;

Session altered.

Elapsed: 00:00:00.01
09:37:33 SYS@ORCL> SELECT COUNT(*) FROM DBA_TABLES;

  COUNT(*)
----------
      1768

Elapsed: 00:00:00.18
09:37:36 SYS@ORCL> SELECT COUNT(*) FROM CDB_TABLES;

  COUNT(*)
----------
      1768

Elapsed: 00:00:01.50
09:37:40 SYS@ORCL>
```

Parâmetros

```
10:19:26 SYS@ORCL> SELECT COUNT(*) FROM V$PARAMETER;

  COUNT(*)
----------
       417

Elapsed: 00:00:00.03
10:19:33 SYS@ORCL> SELECT COUNT(NAME) FROM V$PARAMETER
10:19:39   2  WHERE ISPDB_MODIFIABLE = 'TRUE';

COUNT(NAME)
-----------
        160

Elapsed: 00:00:00.03
10:19:48 SYS@ORCL>
```

Parâmetros

```
10:22:17 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
10:22:21 SYS@ORCL> SHOW PARAMETER WORKAREA_SIZE_POLICY

NAME                                 TYPE         VALUE
------------------------------------ ------------ -------
workarea_size_policy                 string       AUTO
10:22:22 SYS@ORCL> ALTER SESSION SET CONTAINER = PROD;

Session altered.

Elapsed: 00:00:00.00
10:22:27 SYS@ORCL> SHOW PARAMETER WORKAREA_SIZE_POLICY

NAME                                 TYPE         VALUE
------------------------------------ ------------ -------
workarea_size_policy                 string       MANUAL
10:22:29 SYS@ORCL>
```

TABLESPACEs

```
10:00:48 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
10:00:55 SYS@ORCL> CREATE TABLESPACE T DATAFILE '/u01/users01-CDB.dbf' SIZE 100M;

Tablespace created.

Elapsed: 00:00:02.86
10:01:03 SYS@ORCL> ALTER SESSION SET CONTAINER = PROD;

Session altered.

Elapsed: 00:00:00.00
10:01:07 SYS@ORCL> CREATE TABLESPACE T DATAFILE '/u01/users01-PROD.dbf' SIZE 100M;

Tablespace created.

Elapsed: 00:00:02.49
10:01:16 SYS@ORCL>
```

USERs

```
10:24:21 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
10:24:27 SYS@ORCL> CREATE USER RICARDO IDENTIFIED BY Nerv2017;
CREATE USER RICARDO IDENTIFIED BY Nerv2017
            *
ERROR at line 1:
ORA-65096: invalid common user or role name


Elapsed: 00:00:00.02
10:24:39 SYS@ORCL> CREATE USER C##RICARDO IDENTIFIED BY Nerv2017;

User created.

Elapsed: 00:00:00.49
10:24:45 SYS@ORCL>
```

USERs

```
10:34:02 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
CDB$ROOT
10:34:05 SYS@ORCL> GRANT CREATE SESSION TO C##RICARDO;

Grant succeeded.

Elapsed: 00:00:00.03
10:34:07 SYS@ORCL> CONN C##RICARDO/Nerv2017@PROD
ERROR:
ORA-01045: user C##RICARDO lacks CREATE SESSION privilege; logon denied


Warning: You are no longer connected to ORACLE.
10:34:11 SYS@ORCL>
```

USERs

```
10:35:20 SYS@ORCL> SHOW CON_NAME

CON_NAME
------------------------------
PROD
10:35:23 SYS@ORCL> GRANT CREATE SESSION TO C##RICARDO;

Grant succeeded.

Elapsed: 00:00:00.12
10:35:30 SYS@ORCL> CONN C##RICARDO/Nerv2017@PROD
Connected.
10:35:34 C##RICARDO@PROD>
```

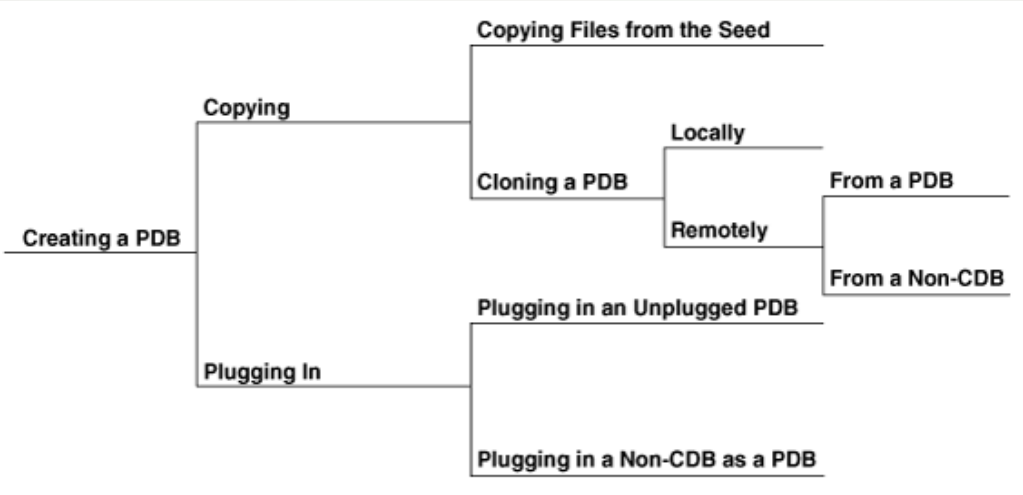
USERs

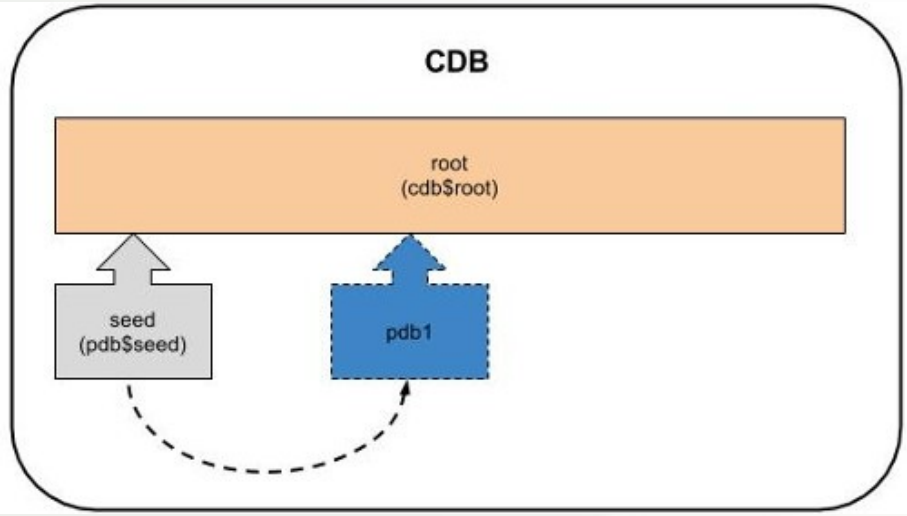
```
11:43:38 SYS@ORCL> ALTER SESSION SET CONTAINER = PROD;

Session altered.

Elapsed: 00:00:00.00
11:43:45 SYS@ORCL> CREATE USER TESTE IDENTIFIED BY Nerv2017;

User created.

Elapsed: 00:00:00.18
11:44:01 SYS@ORCL> ALTER SESSION SET CONTAINER = DEV;

Session altered.

Elapsed: 00:00:00.00
11:44:04 SYS@ORCL> CREATE USER TESTE IDENTIFIED BY Nerv2017;

User created.

Elapsed: 00:00:00.19
11:44:06 SYS@ORCL>
```

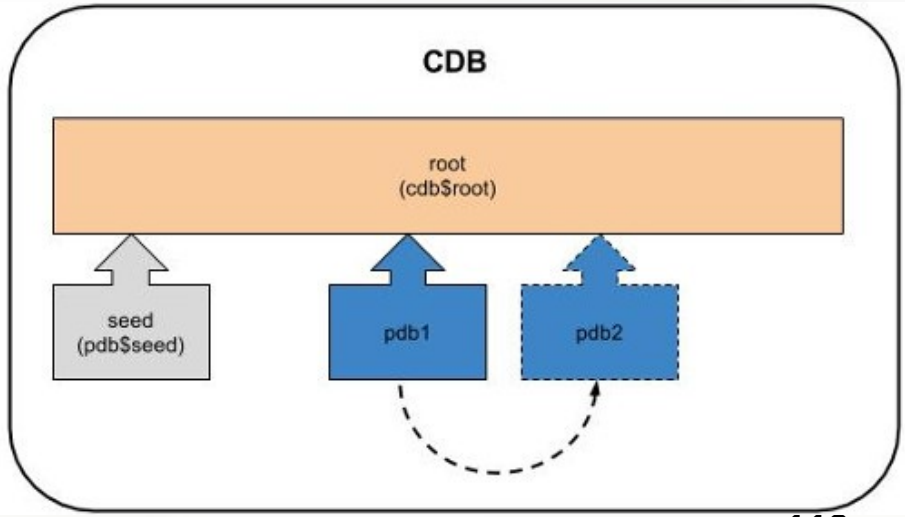
SELECT em outros Containers

```
08:05:23 C##RICARDO@ORCL> SELECT C1 FROM T;

        C1
----------
         1

Elapsed: 00:00:00.01
08:05:25 C##RICARDO@ORCL> SELECT C1 FROM CONTAINERS(T) WHERE CON_ID = 3;

        C1
----------
         1

Elapsed: 00:00:00.01
08:05:30 C##RICARDO@ORCL>
```

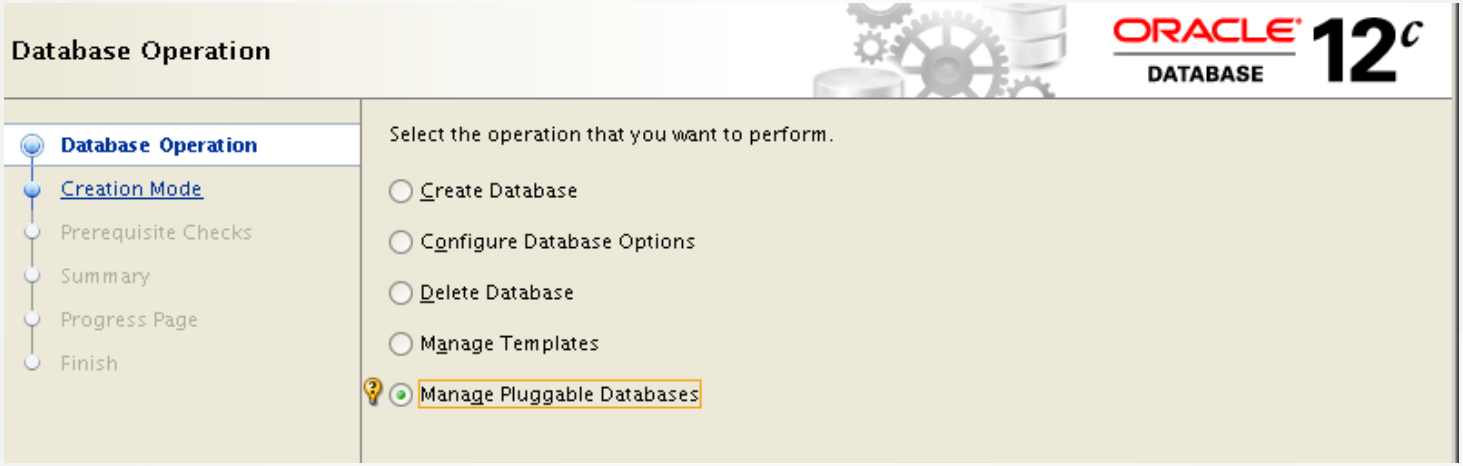
Criando (Clonando) um PDB







Criando (Clonando) um PDB



Criando (Clonando) um PDB

Criando (Clonando) um PDB

```
11:27:54 SYS@ORCL> CREATE PLUGGABLE DATABASE DEV
11:28:04   2  ADMIN USER RICARDO IDENTIFIED BY Nerv2017
11:28:13   3  FILE_NAME_CONVERT=(
11:28:19   4  '/u01/app/oracle/oradata/ORCL/pdbseed/',
11:28:25   5  '/u01/app/oracle/oradata/ORCL/DEV/');

Pluggable database created.

Elapsed: 00:00:22.04
11:29:00 SYS@ORCL> ALTER PLUGGABLE DATABASE DEV OPEN READ WRITE;

Pluggable database altered.

Elapsed: 00:00:09.39
11:29:30 SYS@ORCL>
```

Criando (Clonando) um PDB

```
11:29:31 SYS@ORCL> CREATE PLUGGABLE DATABASE DEVNEW FROM DEV
11:30:20   2  FILE_NAME_CONVERT=(
11:30:24   3  '/u01/app/oracle/oradata/ORCL/DEV/',
11:30:35   4  '/u01/app/oracle/oradata/ORCL/TantoFaz/');

Pluggable database created.

Elapsed: 00:00:29.23
11:31:33 SYS@ORCL> ALTER PLUGGABLE DATABASE DEVNEW OPEN READ WRITE;

Pluggable database altered.

Elapsed: 00:00:08.53
11:31:53 SYS@ORCL>
```

Unplug / Plug

```
08:11:38 SYS@ORCL> ALTER PLUGGABLE DATABASE DEV CLOSE;

Pluggable database altered.

Elapsed: 00:00:02.17
08:11:58 SYS@ORCL> ALTER PLUGGABLE DATABASE DEV UNPLUG INTO '/tmp/DEV.xml';

Pluggable database altered.

Elapsed: 00:00:10.13
08:12:29 SYS@ORCL> exit
```

```
[oracle@nerv06 ~]$ scp /tmp/DEV.xml oracle@192.168.0.104:/home/oracle/
oracle@192.168.0.104's password:
DEV.xml                                       100% 6199     6.1KB/s   00:00
[oracle@nerv06 ~]$ scp -Cr /u01/app/oracle/oradata/ORCL/DEV/ oracle@192.168.0.104:
01/app/oracle/oradata/ORCL/
oracle@192.168.0.104's password:
sysaux01.dbf                                  100%  195MB  19.5MB/s   00:10
system01.dbf                                  100%  210MB  26.3MB/s   00:08
undotbs01.dbf                                 100%  210MB  16.2MB/s   00:13
temp01.dbf                                    100%   20MB  20.0MB/s   00:00
[oracle@nerv06 ~]$
```

Unplug / Plug

```
08:20:37 SYS@ORCL> CREATE PLUGGABLE DATABASE DEV USING '/home/oracle/DEV.xml'
08:21:06   2  NOCOPY TEMPFILE REUSE;

Pluggable database created.

Elapsed: 00:00:06.78
08:21:24 SYS@ORCL> ALTER PLUGGABLE DATABASE DEV OPEN READ WRITE;

Pluggable database altered.

Elapsed: 00:00:21.09
08:22:04 SYS@ORCL>
```

DROP

```
[oracle@nerv06 ~]$ rlwrap sqlplus / as SYSDBA

SQL*Plus: Release 12.2.0.1.0 Production on Mon Jul 24 08:27:28 2017

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


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

08:27:29 SYS@ORCL> DROP PLUGGABLE DATABASE DEV INCLUDING DATAFILES;

Pluggable database dropped.

Elapsed: 00:00:03.49
08:27:33 SYS@ORCL>
```

Backup

CDB e PDBs

```
RMAN> BACKUP DATABASE;
RMAN> BACKUP DATAFILE 1;
RMAN> BACKUP DATAFILE 1,3;
```

CDB

```
RMAN> BACKUP DATABASE ROOT;
RMAN> BACKUP TABLESPACE SYSTEM;
RMAN> BACKUP TABLESPACE SYSTEM,SYSAUX;
```

PDBs

```
RMAN> BACKUP PLUGGABLE DATABASE DEV1;
RMAN> BACKUP PLUGGABLE DATABASE DEV1,DEV2;
RMAN> BACKUP TABLESPACE DEV1:SYSTEM;
```

Restore / Recover

CDB e PDBs

```
RMAN> RESTORE DATABASE;
RMAN> RECOVER DATABASE;
RMAN> RESTORE DATAFILE 1;
RMAN> RECOVER DATAFILE 1;
```

CDB

```
RMAN> RESTORE DATABASE ROOT;
RMAN> RECOVER DATABASE ROOT;
RMAN> RESTORE TABLESPACE SYSTEM;
RMAN> RECOVER TABLESPACE SYSTEM;
```

PDBs

```
RMAN> RESTORE PLUGGABLE DATABASE DEV1;
RMAN> RECOVER PLUGGABLE DATABASE DEV1;
RMAN> RESTORE TABLESPACE DEV1:USERS;
RMAN> RECOVER TABLESPACE DEV1:USERS;
```

Chamado 35

Converter o banco non-CDB para Multitenant.

Requisitos:
O banco MERC deve ser um PDB do banco MERCMT.

Procedimento:

```
$ export ORACLE_SID=MERC
SQL> STARTUP MOUNT;
SQL> ALTER DATABASE OPEN READ ONLY;
SQL> EXEC DBMS_PDB.DESCRIBE('/home/oracle/MERC.xml');
SQL> SHUTDOWN IMMEDIATE;
$ export ORACLE_SID=MERCMT
SQL> CREATE PLUGGABLE DATABASE MERC USING '/home/oracle/MERC.xml'
NOCOPY TEMPFILE REUSE;
SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> @?/rdbms/admin/noncdb_to_pdb.sql
```

Chamado 36

Verifique as conexões para o CDB e PDB.

Requisitos:
Verificar formas de conexão e estado dos PDBs.

Procedimento:

```
$ export ORACLE_SID=MERCMT
$ rlwrap sqlplus / AS SYSDBA
SQL> SELECT CDB FROM V$DATABASE;
SQL> SELECT NAME, CON_ID FROM V$CONTAINERS;
SQL> SHOW CON_NAME
SQL> SHOW CON_ID
SQL> SHOW PDBS
SQL> SELECT NAME, OPEN_MODE, OPEN_TIME FROM V$PDBS;

SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> SELECT NAME, CON_ID FROM V$CONTAINERS;
SQL> SHOW CON_NAME
SQL> SHOW CON_ID
SQL> SHOW PDBS
SQL> SELECT NAME, OPEN_MODE, OPEN_TIME FROM V$PDBS;
SQL> ALTER PLUGGABLE DATABASE MERC OPEN READ WRITE;
SQL> SELECT NAME, OPEN_MODE, OPEN_TIME FROM V$PDBS;

$ rlwrap sqlplus SYSTEM/Nerv2019@//nerv01:1521/MERC
```

Chamado 37

Configure uma conexão via tnsnames.ora para o PDB.

Requisitos:
Crie uma entrada no tnsnames.ora para o PDB do vizinho no sentido anti horário.

Procedimento:
Adicione as linhas abaixo no arquivo $ORACLE_HOME/network/admin/tnsnames.ora:

```
...
VENU =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = nerv02.localdomain)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = VENU)
    )
  )
...
```

```
$ rlwrap sqlplus SYSTEM/Nerv2019@VENU
```

Chamado 38

Teste o SHUTDOWN e STARTUP do CDB e PDB.

Requisitos:
Alterar PDB para iniciar em OPEN automaticamente.

Procedimento:

```
$ rlwrap sqlplus / AS SYSDBA
SQL> SHUTDOWN IMMEDIATE;
SQL> STARTUP;
SQL> SELECT NAME, OPEN_MODE, OPEN_TIME FROM V$PDBS;
SQL> ALTER PLUGGABLE DATABASE MERC OPEN READ WRITE;
SQL> SELECT NAME, OPEN_MODE, OPEN_TIME FROM V$PDBS;
SQL> ALTER PLUGGABLE DATABASE MERC SAVE STATE;
```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Chamado 39

Verifique as informações do CDB.

Requisitos:
Confira os DATAFILEs de CDB e PDBs.

Procedimento:

```
$ rlwrap sqlplus / as sysdba
SQL> SELECT FILE_NAME FROM DBA_DATA_FILES;
SQL> SELECT FILE_NAME FROM CDB_DATA_FILES;
SQL> SELECT SUM(BYTES)/1024/1024/1024 GB FROM DBA_DATA_FILES;
SQL> SELECT SUM(BYTES)/1024/1024/1024 GB FROM CDB_DATA_FILES;

SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> SELECT FILE_NAME FROM DBA_DATA_FILES;
SQL> SELECT FILE_NAME FROM CDB_DATA_FILES;
SQL> SELECT SUM(BYTES)/1024/1024/1024 GB FROM DBA_DATA_FILES;
SQL> SELECT SUM(BYTES)/1024/1024/1024 GB FROM CDB_DATA_FILES;
```


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Chamado 40

Crie um Clone do PDB.

Requisitos:
O PDB Clone deve ter o nome MERCDEV, e ser uma cópia do PDB MERC.

Procedimento:

```
$ rlwrap sqlplus / as sysdba
SQL> CREATE PLUGGABLE DATABASE MERCDEV FROM MERC
FILE_NAME_CONVERT=('/u01/11gR2/MERC/','/u01/11gR2/MERCDEV/');
SQL> ALTER PLUGGABLE DATABASE MERCDEV OPEN READ WRITE;
SQL> ALTER PLUGGABLE DATABASE MERCDEV SAVE STATE;
SQL> ALTER SESSION SET CONTAINER = MERCDEV;
SQL> SELECT FILE_NAME FROM DBA_DATA_FILES;
```


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Chamado 41

Crie uma TABLESPACE no CDB e em todos os PDBs.

Requisitos:
A TABLESPACE deve ter o mesmo nome e ficar no mesmo diretório, no CDB e em todos os PDBs.

Procedimento:

```
$ rlwrap sqlplus / AS SYSDBA
SQL> CREATE TABLESPACE TESTE DATAFILE '/u01/12cR2/MERC-
teste01.dbf' SIZE 100M AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED;
```

O que aconteceu?

```
SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> CREATE TABLESPACE TESTE DATAFILE '/u01/12cR2/MERCDEV-
teste01.dbf' SIZE 100M AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED;
SQL> ALTER SESSION SET CONTAINER = MERCDEV;
SQL> CREATE TABLESPACE TESTE DATAFILE '/u01/12cR2/MERCMT-
teste01.dbf' SIZE 100M AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED;
```

O que aconteceu?

```
SQL> SELECT CON_ID, TABLESPACE_NAME, FILE_NAME FROM
CDB_DATA_FILES ORDER BY 1,2;
```


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Chamado 42

Crie um usuário no CDB e nos PDBs.

Requisitos:
Um usuário com o nome do DBA deve ser criado do CDB e nos PDBs MERC e MERCDEV, com permissão de conexão.

Procedimento:

```
$ rlwrap sqlplus / AS SYSDBA
SQL> CREATE USER C##RICARDO IDENTIFIED BY Nerv2019;

SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> CREATE USER RICARDO IDENTIFIED BY Nerv2019;
SQL> ALTER SESSION SET CONTAINER = MERCDEV;
SQL> CREATE USER RICARDO IDENTIFIED BY Nerv2019;

SQL> ALTER SESSION SET CONTAINER = CDB$ROOT;
SQL> CREATE ROLE C##ROLE_TESTE;
SQL> GRANT CREATE SESSION TO C##ROLE_TESTE;
SQL> GRANT C##ROLE_TESTE TO C##RICARDO;
SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> GRANT C##ROLE_TESTE TO RICARDO;
SQL> ALTER SESSION SET CONTAINER = MERCDEV;
SQL> GRANT C##ROLE_TESTE TO RICARDO;
```

Chamado 43

Altere um parâmetro no CDB e em um PDB.

Requisitos:
O parâmetro WORKAREA_SIZE_POLICY deve ser configurado como AUTO no CDB e no PDB MERC, e como MANUAL no PDB MERCDEV.

Procedimento:

```
$ rlwrap sqlplus / AS SYSDBA
SQL> ALTER SYSTEM SET WORKAREA_SIZE_POLICY=AUTO CONTAINER=CURRENT;

SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> ALTER SYSTEM SET WORKAREA_SIZE_POLICY=AUTO CONTAINER=CURRENT;

SQL> ALTER SESSION SET CONTAINER = MERCDEV;
SQL> ALTER SYSTEM SET WORKAREA_SIZE_POLICY=MANUAL CONTAINER=CURRENT;

$ rlwrap sqlplus / AS SYSDBA
SQL> SHOW PARAMETER WORKAREA_SIZE_POLICY

SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> SHOW PARAMETER WORKAREA_SIZE_POLICY

SQL> ALTER SESSION SET CONTAINER = MERCDEV;
SQL> SHOW PARAMETER WORKAREA_SIZE_POLICY
```


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Chamado 44

Clone um PDB para outro servidor.

Requisitos:
O PDB MERC deve ser clonado para o vizinho no sentido anti horário. O método deve ser via cópia (scp).

Procedimento:

```
$ rlwrap sqlplus / AS SYSDBA
SQL> ALTER PLUGGABLE DATABASE MERC CLOSE;
SQL> ALTER PLUGGABLE DATABASE MERC UNPLUG INTO '/home/oracle/MERC-MIGRA.xml';
$ scp /home/oracle/MERC-MIGRA.xml nerv02:/home/oracle/MERC-MIGRA.xml
$ scp /u01/11gR2/MERC/*.dbf nerv02:/u01/11gR2/MERC/

$ ssh nerv02
SQL> CREATE PLUGGABLE DATABASE MERC USING '/home/oracle/MERC-MIGRA.xml' NOCOPY
TEMPFILE REUSE;
SQL> ALTER PLUGGABLE DATABASE MERC OPEN READ WRITE;
SQL> ALTER PLUGGABLE DATABASE MERC SAVE STATE;
$ exit
```

O que aconteceu?

```
SQL> DROP PLUGGABLE DATABASE MERC KEEP DATAFILES;
SQL> CREATE PLUGGABLE DATABASE MERC USING '/home/oracle/MERC-MIGRA.xml' NOCOPY
TEMPFILE REUSE;
SQL> ALTER PLUGGABLE DATABASE MERC OPEN READ WRITE;
SQL> ALTER PLUGGABLE DATABASE MERC SAVE STATE;
```

Chamado 45

Instale o Grid Infrastructure.

Requisitos:
A instalação deve ser feita com um DiskGroup com nome DATA, utilizando um disco do Storage

Procedimento:

```
$ sudo groupadd asmadmin
$ sudo groupadd asmdba
$ sudo groupadd asmoper
$ sudo usermod -g oinstall -G dba,oper,asmadmin,asmdba,asmoper oracle

$ sudo yum -y install iscsi-initiator-utils oracleasm-support
$ sudo yum -y install
http://download.oracle.com/otn_software/asmlib/oracleasmlib-2.0.12-
1.el7.x86_64.rpm
$ sudo systemctl enable iscsid
$ sudo iscsiadm -m discovery -t sendtargets -p 192.168.15.201 -l
```

Chamado 45 - Continuação

```
$ sudo fdisk /dev/sdb
    n <ENTER>
    P <ENTER>
    1 <ENTER>
    <ENTER>
    <ENTER>
    w <ENTER>

$ sudo oracleasm init
$ sudo oracleasm configure -i
    oracle <ENTER>
    asmadmin <ENTER>
    y <ENTER>
    y <ENTER>

$ sudo oracleasm createdisk DISK01 /dev/sdb1
```

Chamado 45 - Continuação

```
$ mkdir -p /u01/app/oracle/product/12.2.0.1/grid
$ cp linuxx64_12201_grid_home.zip /u01/app/oracle/product/12.2.0.1/grid
$ cd /u01/app/oracle/product/12.2.0.1/grid
$ unzip -q linuxx64_12201_grid_home.zip

$ sudo yum -y install
/u01/app/oracle/product/12.2.0.1/grid/cv/rpm/cvuqdisk-1.0.10-1.rpm
$ sudo mount -o remount,size=8g /dev/shm

$ lsnrctl stop

$ cd /u01/app/oracle/product/12.2.0.1/grid
$ cp install/response/gridsetup.rsp /home/oracle/

$ vi /home/oracle/gridsetup.rsp
...
```

Chamado 45 - Continuação

```
INVENTORY_LOCATION=/u01/app/oraInventory
oracle.install.option=HA_CONFIG
ORACLE_BASE=/u01/app/oracle
oracle.install.asm.OSDBA=asmdba
oracle.install.asm.OSOPER=asmoper
oracle.install.asm.OSASM=asmadmin
oracle.install.crs.config.gpnp.scanName=nerv02-cluster-scan
oracle.install.crs.config.gpnp.scanPort=1521
oracle.install.crs.config.ClusterConfiguration=STANDALONE
oracle.install.crs.config.configureAsExtendedCluster=false
oracle.install.crs.config.clusterName=nerv02-cluster
oracle.install.crs.config.gpnp.configureGNS=false
oracle.install.crs.config.autoConfigureClusterNodeVIP=false
oracle.install.asm.configureGIMRDataDG=false
oracle.install.crs.config.useIPMI=false
oracle.install.asm.storageOption=ASM
oracle.install.asmOnNAS.configureGIMRDataDG=false
oracle.install.asm.SYSASMPassword=Nerv2019
oracle.install.asm.diskGroup.name=DATA
oracle.install.asm.diskGroup.redundancy=EXTERNAL
oracle.install.asm.diskGroup.AUSize=4
oracle.install.asm.diskGroup.disksWithFailureGroupNames=/dev/oracleasm/disks/DISK01,
oracle.install.asm.diskGroup.disks=/dev/oracleasm/disks/DISK01
oracle.install.asm.diskGroup.diskDiscoveryString=/dev/oracleasm/disks/*
oracle.install.asm.monitorPassword=Nerv2019
oracle.install.asm.gimrDG.AUSize=1
oracle.install.asm.configureAFD=false
oracle.install.crs.configureRHPS=false
oracle.install.crs.config.ignoreDownNodes=false
oracle.install.config.managementOption=NONE
oracle.install.config.omsPort=0
oracle.install.crs.rootconfig.executeRootScript=false
```

Chamado 45 - Continuação

```
$ cd /u01/app/oracle/product/12.2.0.1/grid
$ ./gridSetup.sh -silent -responseFile /home/oracle/gridsetup.rsp
$ sudo /u01/app/oracle/product/12.2.0.1/grid/root.sh
$ /u01/app/oracle/product/12.2.0.1/grid/gridSetup.sh -executeConfigTools
-responseFile /home/oracle/gridsetup.rsp -silent
```


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Chamado 46

Registre o banco CDB no Grid Infrastructure.

Requisitos:
O CDB deve ser registrado no Grid, para início automático.

Procedimento:

```
$ . oraenv
    MERCMT <ENTER>
SQL> SHUTDOWN IMMEDIATE;

$ . oraenv
    +ASM <ENTER>
$ srvctl add database -db MERCMT -oraclehome
/u01/app/oracle/product/12.2.0.1/db_1 -spfile
/u01/app/oracle/product/12.2.0.1/db_1/dbs/spfileMERCMT.ora -policy
AUTOMATIC -diskgroup DATA
$ srvctl start database -db MERCMT
$ crsctl status res -t
```


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Chamado 47

Mova os DATAFILEs para o ASM.

Requisitos:
Devem ser movidos todos os DATAFILEs do PDB MERC, de forma ONLINE.

Procedimento:

```
$ . oraenv
    MERCMT <ENTER>
$ rlwrap sqlplus / AS SYSDBA
SQL> ALTER SESSION SET CONTAINER = MERC;
SQL> SELECT FILE_NAME FROM DBA_DATA_FILES;
SQL> ALTER DATABASE MOVE DATAFILE '/u01/11gR2/MERC/system01.dbf'
TO '+DATA';
…
SQL> SELECT FILE_NAME FROM DBA_DATA_FILES;
```

Chamado 48

Adicione um disco do Storage do Disk Group DATA.

Requisitos:
Deve ser adicionado um disco ao DiskGroup DATA.

Procedimento:

```
$ sudo iscsiadm -m discovery -t sendtargets -p 192.168.15.201 -l

$ sudo fdisk -l
$ sudo fdisk /dev/sdc
n <enter>
p <enter>
1 <enter>
<enter>
<enter>
w <enter>

$ sudo oracleasm createdisk DISK02 /dev/sdc1
```


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Chamado 48 - Continuação

```
$ . oraenv
    +ASM <ENTER>
$ rlwrap sqlplus / AS SYSASM

SQL> SELECT NAME, TOTAL_MB, FREE_MB, USABLE_FILE_MB FROM V$ASM_DISKGROUP;
SQL> SELECT NAME, TOTAL_MB, FREE_MB FROM V$ASM_DISK;

SQL> ALTER DISKGROUP DATA ADD DISK '/dev/oracleasm/disks/DISK02';
SQL> SELECT NAME, TOTAL_MB, FREE_MB, USABLE_FILE_MB FROM V$ASM_DISKGROUP;
SQL> SELECT NAME, TOTAL_MB, FREE_MB FROM V$ASM_DISK;
SQL> SELECT * FROM V$ASM_OPERATION;

$ tail -f /u01/app/oracle/diag/asm/+asm/+ASM/trace/alert_+ASM.log
```


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Chamado 49

Mova um DATAFILE para o ASM.

Requisitos:
O DATAFILE da USERS do CDB deve ser movido para ASM, de forma OFFLINE.

Procedimento:

```
$ mkdir /u01/Backup
$ . oraenv
    MERCMT <ENTER>
$ rlwrap rman TARGET /
RMAN> REPORT SCHEMA;
RMAN> SHUTDOWN IMMEDIATE;
RMAN> STARTUP MOUNT;
RMAN> BACKUP DATAFILE 7 TO DESTINATION '/u01/Backup/';
RMAN> RUN {
    SET NEWNAME FOR DATAFILE 7 TO '+DATA';
    RESTORE DATAFILE 7;
    SWITCH DATAFILE 7;
    }
RMAN> REPORT SCHEMA;
RMAN> ALTER DATABASE OPEN;
```


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Chamado 50

Migrar de Storage.

Requisitos:
Todos os dados do Storage 192.168.0.201 devem ser migrados para o Storage 192.168.15.202, de forma online.

Procedimento:

```
$ sudo iscsiadm -m discovery -t sendtargets -p 192.168.15.202 -l

$ sudo fdisk -l
$ sudo fdisk /dev/sdd
n <enter>
p <enter>
1 <enter>
<enter>
<enter>
w <enter>

$ sudo oracleasm createdisk DISK03 /dev/sdd1
```


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Chamado 50 - Continuação

Migrar de Storage.

```
$ . oraenv
    +ASM <ENTER>
$ rlwrap sqlplus / AS SYSASM
SQL> SELECT NAME, TOTAL_MB, FREE_MB, USABLE_FILE_MB FROM V$ASM_DISKGROUP;
SQL> SELECT NAME, PATH, TOTAL_MB, FREE_MB FROM V$ASM_DISK;
SQL> ALTER DISKGROUP DATA ADD DISK '/dev/oracleasm/disks/DISK03';
SQL> SELECT NAME, TOTAL_MB, FREE_MB, USABLE_FILE_MB FROM V$ASM_DISKGROUP;
SQL> SELECT NAME, PATH, TOTAL_MB, FREE_MB FROM V$ASM_DISK;
SQL> SELECT * FROM V$ASM_OPERATION;
SQL> ALTER DISKGROUP DATA DROP DISK DATA_0000;
SQL> ALTER DISKGROUP DATA DROP DISK DATA_0001;
```


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Chamado 51

Verificação e Correção de Licenciamento.

Requisitos:
Deve ser verificado se há erros de Licenciamento no ambiente instalado.
Deve ser criado um banco SE2, com 1 PDB, e migrado o SCHEMA da aplicação.

Procedimento:

```
SQL> COLUMN NAME FORMAT A60
SQL> SELECT NAME, DETECTED_USAGES, CURRENTLY_USED,
FIRST_USAGE_DATE, LAST_USAGE_DATE FROM
DBA_FEATURE_USAGE_STATISTICS WHERE DETECTED_USAGES > 0
ORDER BY 1;
```


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Eu instalei o Oracle Database em minha empresa, mas não tenho Licença. Quando ele vai expirar e parar de funcionar?

Resposta: Nunca. Apesar de ser uma situação completamente ilegal, o Oracle Database não possui expiração, ao contrário de outros fabricantes.

Eu instalei o Oracle Database em minha empresa, mas não tenho Licença. Quando a Oracle irá auditar minha empresa?

Resposta: Não sei.

Eu instalei o Oracle Database, e só depois comprei a Licença.
Como faço para instalar a Licença?

Resposta: Este procedimento não existe. Ao contrário de outros fabricantes, nada na instalação do Oracle Database está vinculado a uma Licença. o mais próximo que se chega desta situação é colocar a acesso do MOS (My Oracle Support) durante a instalação do Oracle Database, para administração de correções.

Quanto custa?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

	Oracle Database			
	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Database Products				
Oracle Database				
Standard Edition 2	350	77.00	17,500	3,850.00
Enterprise Edition	950	209.00	47,500	10,450.00
Personal Edition	460	101.20	-	-
Mobile Server	-	-	23,000	5,060.00
NoSQL Database Enterprise Edition	200	44	10,000	2,200.00
Enterprise Edition Options:				
Multitenant	350	77.00	17,500	3,850.00
Real Application Clusters	460	101.20	23,000	5,060.00
Real Application Clusters One Node	200	44.00	10,000	2,200.00
Active Data Guard	230	50.60	11,500	2,530.00
Partitioning	230	50.60	11,500	2,530.00
Real Application Testing	230	50.60	11,500	2,530.00
Advanced Compression	230	50.60	11,500	2,530.00
Advanced Security	300	66.00	15,000	3,300.00
Label Security	230	50.60	11,500	2,530.00
Database Vault	230	50.60	11,500	2,530.00
OLAP	460	101.20	23,000	5,060.00
Advanced Analytics	460	101.20	23,000	5,060.00
Spatial and Graph	350	77.00	17,500	3,850.00
TimesTen Application-Tier Database Cache	460	101.20	23,000	5,060.00
Database In-Memory	460	101.20	23,000	5,060.00
Retail Data Model	800	176.00	40,000	8,800.00
Communications Data Model	1,500	330.00	50,000	11,000.00
Airlines Data Model	800	176.00	40,000	8,800.00
Utilities Data Model	800	176.00	40,000	8,800.00
Database Enterprise Management				
Diagnostics Pack	150	33.00	7,500	1,650.00
Tuning Pack	100	22.00	5,000	1,100.00
Database Lifecycle Management Pack	240	52.80	12,000	2,640.00
Data Masking and Subsetting Pack	230	50.60	11,500	2,530.00
Cloud Management Pack for Oracle Database	150	33.00	7,500	1,650.00

Quanto custa?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

	Database Machine Price	Oracle Premier Support for Systems (Annual)	Oracle Premier Support for Operating Systems (Annual)	Oracle Customer Data and Device Retention (Annual)	Notes
Database Machine Base Configurations					
Exadata Database Machine X7-2 Extreme Flash (EF) Quarter Rack (384 GB per Database Server)	345,000	41,400	27,600	10,350	1, 2, 9, 14
Exadata Database Machine X7-2 High Capacity (HC) Quarter Rack (384 GB per Database Server)	345,000	41,400	27,600	10,350	1, 2, 9, 14
Exadata Database Machine X7-2 Extreme Flash (EF) Quarter Rack (768 GB per Database Server)	368,000	44,160	29,440	11,040	1, 2, 9, 14
Exadata Database Machine X7-2 High Capacity (HC) Quarter Rack (768 GB per Database Server)	368,000	44,160	29,440	11,040	1, 2, 9, 14
Exadata Database Machine X7-2 Extreme Flash (EF) Eighth Rack	230,000	27,600	18,400	6,900	9
Exadata Database Machine X7-2 High Capacity (HC) Eighth Rack	230,000	27,600	18,400	6,900	9
Exadata Database Machine X7-8 Extreme Flash (EF) Half Rack	890,000	106,800	71,200	26,700	1, 2, 9, 14
Exadata Database Machine X7-8 High Capacity (HC) Half Rack	890,000	106,800	71,200	26,700	1, 2, 9, 14
Database Machine Standard Configurations					
Exadata Database Machine X7-2 Extreme Flash (EF) Full Rack (384 GB per Database Server)	1,147,000	137,640	91,760	34,410	1,2,9
Exadata Database Machine X7-2 High Capacity (HC) Full Rack (384 GB per Database Server)	1,147,000	137,640	91,760	34,410	1,2,9
Exadata Database Machine X7-2 Extreme Flash (EF) Full Rack (768 GB per Database Server)	1,239,000	148,680	99,120	37,170	1,2,9
Exadata Database Machine X7-2 High Capacity (HC) Full Rack (768 GB per Database Server)	1,239,000	148,680	99,120	37,170	1,2,9
Exadata Database Machine X7-2 Extreme Flash (EF) Half Rack (384 GB per Database Server)	629,000	75,480	50,320	18,870	1,2,9
Exadata Database Machine X7-2 High Capacity (HC) Half Rack (384 GB per Database Server)	629,000	75,480	50,320	18,870	1,2,9
Exadata Database Machine X7-2 Extreme Flash (EF) Half Rack (768 GB per Database Server)	675,000	81,000	54,000	20,250	1,2,9
Exadata Database Machine X7-2 High Capacity (HC) Half Rack (768 GB per Database Server)	675,000	81,000	54,000	20,250	1,2,9
Exadata Database Machine X7-8 Extreme Flash (EF) Full Rack	1,440,000	172,800	115,200	43,200	1, 2, 9
Exadata Database Machine X7-8 High Capacity (HC) Full Rack	1,440,000	172,800	115,200	43,200	1, 2, 9

Quanto custa?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

Prices in USA (Dollar)

Oracle Linux Support

	License Price	Support Price	Licensing Metric
1 Year Support [1, 2]			
Oracle Linux Network	-	119.00	System
Oracle Linux Basic Limited	-	499.00	System
Oracle Linux Basic	-	1,199.00	System
Oracle Linux Premier Limited	-	1,399.00	System
Oracle Linux Premier	-	2,299.00	System

Como faço para comprar?

Oracle Store
https://shop.oracle.com

ORACLE Store Browse Products New user? Sign in

Oracle Database Enterprise Edition

Oracle Database Enterprise Edition will greatly benefit customers deploying private database clouds and SaaS vendors looking for the power of Oracle database in a secure and isolated multitenant model. The multitenant database architecture enables higher levels of consolidation on the Cloud, without the need to change existing applications, Automatic Data Optimization features efficiently manage more data, lower storage costs and improve database performance, and scalable discovery of business event sequences with enhanced in-Database MapReduce capabilities for Big Data.

- Learn More
- Technical Specifications

To quote or purchase this product, contact Sales for assistance at +55 11 5187 7500.

R$160,227.00 / Processador

Métrica: Processador

Duração: Perpétua

Software Update License and Support (Primeiro ano) R$35,249.94

Preciso pagar o Suporte?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

	Oracle Database			
	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Database Products				
Oracle Database				
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Spatial and Graph	350	77.00	17,500	3,850.00
TimesTen Application-Tier Database Cache	460	101.20	23,000	5,060.00
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Cloud Management Pack for Oracle Database	150	33.00	7,500	1,650.00

Preciso pagar o Suporte?

Oracle Database Software Downloads
https://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html

Oracle Database 11*g* Release 2

Standard Edition, Standard Edition One, and Enterprise Edition

7/13: Patch Set 11.2.0.4 for Linux and Solaris is now available on support.oracle.com. Note: it is a full installation (you do not need to download 11.2.0.1 first). See the README for more info (login to My Oracle Support required).

(11.2.0.4.0)	
OpenVMS	File 1 (2GB)
(11.2.0.2.0)	
zLinux64	File 1, File 2 (2GB) See All
(11.2.0.1.0)	
Microsoft Windows (32-bit)	File 1, File 2 (2GB) See All
Microsoft Windows (x64)	File 1, File 2 (2GB) See All
Linux x86	File 1, File 2 (2GB) See All
Linux x86-64	File 1, File 2 (2GB) See All
Solaris (SPARC) (64-bit)	File 1, File 2 (2GB) See All
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HP-UX Itanium	File 1, File 2 (2GB) See All
HP-UX PA-RISC (64-bit)	File 1, File 2 (2GB) See All
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Preciso pagar o Suporte?

My Oracle Support
https://support.oracle.com

Assistant: Download Reference for Oracle Database/GI Update, Revision, PSU, SPU(CPU), Bundle Patches, Patchsets and Base Releases (Doc ID 2118136.2)

To Bottom

Selection(s)

What would you like to download?

> Oracle Database Patchsets [Change]

Related Information

Patchsets

12.1.0.2 (12.1.0.2.0 PATCH SET FOR ORACLE DATABASE SERVER)	21419221
11.2.0.4 (11.2.0.4.0 PATCH SET FOR ORACLE DATABASE SERVER)	13390677
11.2.0.3 (11.2.0.3.0 PATCH SET FOR ORACLE DATABASE SERVER)	10404530
11.2.0.2 (11.2.0.2.0 PATCH SET FOR ORACLE DATABASE SERVER)	10098816
11.1.0.7 (11.1.0.7.0 PATCH SET FOR ORACLE DATABASE SERVER)	6890831
10.2.0.5 (10.2.0.5 PATCH SET FOR ORACLE DATABASE SERVER)	8202632
[A]**10.2.0.4** (10.2.0.4.0 PATCH SET FOR ORACLE DATABASE SERVER)	6810189
[B]**10.2.0.3** (10.2.0.3 PATCH SET FOR ORACLE DATABASE SERVER)	5337014
10.2.0.2 (10.2.0.2 PATCH SET FOR ORACLE DATABASE SERVER)	4547817
10.1.0.5 (10.1.0.5 PATCH SET FOR ORACLE DATABASE SERVER)	4505133
10.1.0.4 (10.1.0.4 PATCH SET FOR ORACLE DATABASE SERVER)	4163362
10.1.0.3 (10.1.0.3 PATCH SET FOR ORACLE DATABASE SERVER)	3761843
9.2.0.8 (9.2.0.8 PATCH SET FOR ORACLE DATABASE SERVER)	4547809

Não paguei o Suporte ano passado, pois não usamos. Agora queremos voltar a pagar.

Resposta: O suporte terá que ser pago retroativo.

O que são os Níveis de Suporte?

Expect Lifetime Support
https://www.oracle.com/support/lifetime-support/index.html

Benefits of Lifetime Support Software

	Premier Support	Extended Support	Sustaining Support
Major product and technology releases	✓	✓	✓
24x7 assistance with service requests	✓	✓	✓
Access to My Oracle Support including Knowledge Base	✓	✓	✓
Software updates	✓	✓	Pre-existing
Security alerts and updates	✓	✓	Pre-existing
Critical patch updates	✓	✓	Pre-existing
Tax, legal, and regulatory updates	✓	✓	Pre-existing
Upgrade tools and scripts	✓	✓	Pre-existing
Access to Platinum Services	✓	✓	✗
Certification with most existing Oracle products/versions	✓	✓	Pre-existing
Certification with most existing third party products	✓	✓	Pre-existing
Certification with most new third party products	✓	✗	✗

O que são os Níveis de Suporte?

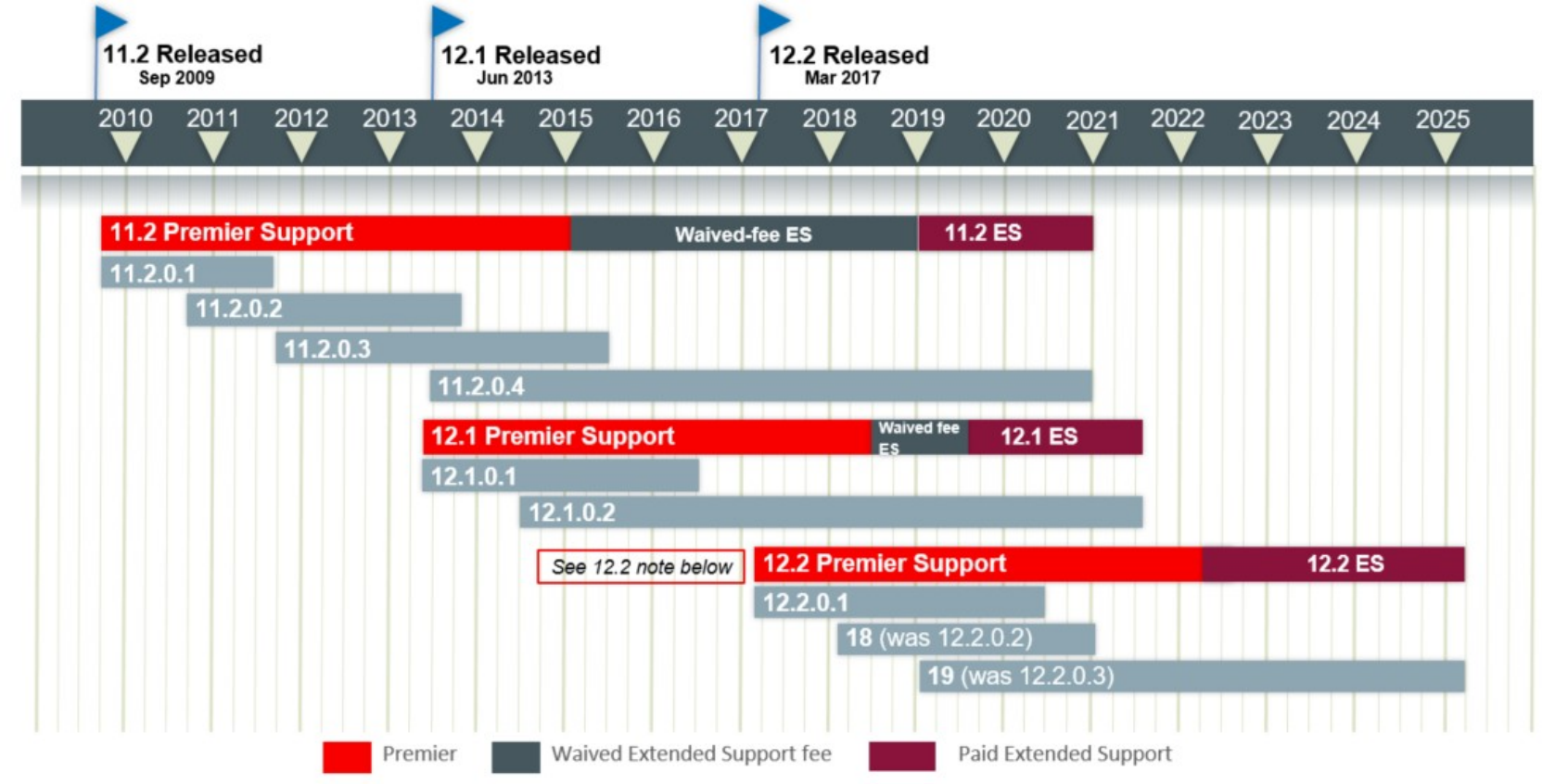
Oracle Lifetime Support: Coverage for Oracle Technology Products
http://www.oracle.com/us/support/library/lsp-tech-chart-069290.pdf

Oracle Database Releases

Release	GA Date	Premier Support Ends	Extended Support Ends	Sustaining Support Ends
8.1.7	Sep 2000	Dec 2004	Dec 2006	Indefinite
9.2	Jul 2002	Jul 2007	Jul 2010	Indefinite
10.1	Jan 2004	Jan 2009	Jan 2012	Indefinite
10.2	Jul 2005	Jul 2010	Jul 2013	Indefinite
11.1	Aug 2007	Aug 2012	Aug 2015	Indefinite
11.2	Sep 2009	Jan 2015	Dec 2020	Indefinite
Enterprise Edition 12.1	Jun 2013	Jul 2018	Jul 2021	Indefinite
Standard Edition (SE) 12.1	Jun 2013	Aug 2016	Not Available	Indefinite
Standard Edition One (SE1) 12.1	Jun 2013	Aug 2016	Not Available	Indefinite
Standard Edition 2 (SE2) 12.1	Sep 2015	Jul 2018	Jul 2021	Indefinite
12.2	Mar 2017	Mar 2022	Mar 2025	Indefinite

O que são os Níveis de Suporte?

Release Schedule of Current Database Releases (Doc ID 742060.1)
https://support.oracle.com



Eu posso utilizar a SE / SE1 / SE2 / EE?

Database Licensing
http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf

~~Standad Edition (SE): Até 4 Sockets.~~
~~Standad Edition One (SE1): Até 2 Sockets.~~
Standad Edition Two (SE2): Até 2 Sockets (mesmo preço base da SE).
Enterprise Edition (EE): Sem limite de Sockets.

Socket = processador físico, pastilha.
Um Socket pode ter N Cores / Núcleos.

O que é a SE2?

Database Licensing
http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf

– A partir do Patchset 12.1.0.2, não há mais as Edições SE e SE1.
– As Edições SE e SE1 não são mais comercializadas desde 01/12/2015.
– A SE2 pode ser utilizada em um servidor com até 2 Sockets (como era a SE1).
– A SE2 iniciou com o preço que da SE.
– A SE2 pode ser utilizada em RAC, desde que não ultrapasse 2 Sockets em todo o Cluster (ou seja, um Socket por nó).
– O mínimo de usuários (se licenciado por Named User, obviamente) é 10 (como a SE).
– Os binários são disponibilizados separadamente, ao contrário de antes (mas voltaram a ser um único arquivo de instalação na 12.2.0.1).

- Oracle Database Standard Edition 2 may only be licensed on servers that have a maximum capacity of 2 sockets. When used with Oracle Real Application Clusters, Oracle Database Standard Edition 2 may only be licensed on a maximum of 2 one-socket servers. In addition, notwithstanding any provision in Your Oracle license agreement to the contrary, each Oracle Database Standard Edition 2 database may use a maximum of 16 CPU threads at any time. When used with Oracle Real Application Clusters, each Oracle Database Standard Edition 2 database may use a maximum of 8 CPU threads per instance at any time. The minimums when licensing by Named User Plus (NUP) metric are 10 NUP licenses per server.

Eu tenho SE / SE1. Preciso migrar para 12.1.0.2 ou superior.

Oracle Database Standard Edition 2
http://www.oracle.com/us/products/database/oracle-db-se2-brief-2680836.pdf

Zero-Cost License Migration from SE: SE customers can choose to upgrade to Oracle Database Standard Edition 2 without incurring any additional license cost.

License migration from SE1: With a minor support cost uplift (20%), which averages to about $500 per socket across all SE1 customers, SE1 customers gain access to enterprise capabilities including RAC for high availability and new features such as a container database architecture that makes it easy to migrate to the cloud, and JSON support that enable big data analysis and provide an enterprise class document store. Refer to the Database Licensing Information for more details about the features including in this edition.

Posso utilizar a XE (Express Edition) em Produção?

Oracle Technology Network Developer License Terms for Oracle Database Express Edition
http://www.oracle.com/technetwork/licenses/database-11g-express-license-459621.html

License Rights
We grant you a nonexclusive, nontransferable limited license to use the programs for: (a) purposes of developing, prototyping and running your applications for your own internal data processing operations; (b) you may also distribute the programs with your applications; (c) you may use the programs to provide third party demonstrations and training; and d) you may copy and distribute the programs to your licensees provided that each such licensee agrees to the terms of this Agreement. You are not permitted to use the programs for any purpose other than as permitted under this Agreement. Program documentation is either shipped with the programs, or documentation may accessed online at http://www.oracle.com/technetwork/indexes/documentation/index.html.

Any use of the Oracle Database Express Edition is subject to the following limitations;
1. Express Edition is limited to a single instance on any server;
2. Express Edition may be installed on a multiple CPU server, but may only be executed on one processor in any server;
3. Express Edition may only be used to support up to 11GB of user data (not including Express Edition system data);
4. Express Edition may use up to 1 GB RAM of available memory.

Posso utilizar a XE (Express Edition) em Produção?

Oracle XE 12c becomes Oracle XE 18c
https://ora-00001.blogspot.com/2017/10/oracle-xe-12c-becomes-oracle-xe-18c.html

- The next version of Oracle Express Edition (XE) will be 18c. (Source: Chris Saxon, Twitter)
- ~~Oracle XE 18c is expected in Q1 of 2018.~~ (Source: AMIS blog). UPDATE: Oracle XE 18c "is currently planned between March and August 2018 and might change". (Source: Gerald Venzl, Twitter)
- There will be yearly releases of Oracle Express Edition (XE), ie Oracle XE 19c in 2019, etc. (Source: Franck Pachot, Twitter).
- There will be simultaneous releases of XE for Linux and Windows. (Source: Gerald Venzl, Twitter)
- Limits for XE 18c will be 2 GB of memory, 12GB of storage (with basic/advanced compression bringing real capacity up to around 40GB), 2 CPUs and 4 pluggable databases. (Source: AMIS blog and Lucas Jellema, Twitter)
- Express Edition (XE) will actually include "nearly all" of the features from Enterprise Edition (EE)! (Source: Franck Pachot, Twitter and Chris Saxon, Twitter).
- Express Edition (XE) will still be free for both development and production. (Source: Chris Saxon, Twitter).
- There will be no support (except through community/forums) for XE, and no bug fixes/patches. Still, with a yearly release cycle that means bugs will be fixed by upgrading to the latest release. (Source: Franck Pachot and Bob Bryla, Twitter)

Licenciamento por Processador ou por Named User?

Database Licensing
http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf

Software Investiment Guide
http://www.oracle.com/us/corporate/pricing/sig-070616.pdf

When licensing the Oracle Database by Named User Plus, all users who are using the Oracle Database, as well as all non-human operated devices that are accessing the Oracle Database must be licensed. The following licensing rules apply:

- If non-human operated devices such as sensors are connecting to the Oracle Database, then all devices need to be licensed.
- If human-operated devices such as bar code scanners are connecting to the Oracle Database, then all humans operating these devices need to be licensed.
- If non-human operated devices and human-operated devices are connecting to the Oracle Database and are mutually exclusive, then all non-human devices and all humans operating devices need to be licensed.

Processor: This metric is used in environments where users cannot be identified and counted. The Internet is a typical environment where it is often difficult to count users. This metric can also be used when the Named User Plus population is very high and it is more cost effective for the customer to license the Database using the Processor metric.

Licenciamento por Processador ou por Named User?

Database Licensing
http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf

Pocessador
~~Standad Edition (SE): 1 Processador = 1 Socket (limite de 4).~~
~~Standad Edition One (SE1): 1 Processador = 1 Socket (limite de 2).~~
Standad Edition Two (SE2): 1 Processador = 1 Socket (limite de 2).
Enterprise Edition (EE): 1 Processador = 1 Core (sem limite).

Named User
~~Standad Edition (SE): Mínimo de 10 Named Users por Processador.~~
~~Standad Edition One (SE1): Mínimo de 10 Named Users por Processador.~~
Standad Edition Two (SE2): Mínimo de 10 Named Users por Processador.
Enterprise Edition (EE): Mínimo de 25 Named Users por Core.

SELECT SESSIONS_HIGHWATER FROM V$LICENSE;

O Licenciamento Named User é para usuários simultâneos?

Database Licensing
http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf

When licensing the Oracle Database by Named User Plus, all users who are using the Oracle Database, as well as all non-human operated devices that are accessing the Oracle Database must be licensed. The following licensing rules apply:

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- If non-human operated devices and human-operated devices are connecting to the Oracle Database and are mutually exclusive, then all non-human devices and all humans operating devices need to be licensed.

Processor: This metric is used in environments where users cannot be identified and counted. The Internet is a typical environment where it is often difficult to count users. This metric can also be used when the Named User Plus population is very high and it is more cost effective for the customer to license the Database using the Processor metric. The Processor metric is not offered for

Meu servidor tem 4 Sockets. A SE / SE1 / SE2 utilizará 2 Sockets?

Resposta: Não, o Oracle utilizará todos os Sockets, mesmo que sua Licença esteja incorreta (mas a SE2 só utilizará 16 Cores).

Core Factor

Oracle Processor Core Factor Table
http://www.oracle.com/us/corporate/contracts/processor-core-factor-table-070634.pdf

ORACLE

Oracle Processor Core Factor Table
Effective Date: March 16, 2009

Vendor and Processor	Core Processor Licensing Factor
Sun and Fujitsu UltraSPARC T1 processor (1.0 or 1.2 GHz) **Only named servers including:** Sun Fire T1000 Server, SPARC Enterprise T1000 Server*, with 6 or 8-core 1.0 GHz UltraSPARC T1 processor Sun Fire T2000 Server, SPARC Enterprise T2000 Server*, with 4, 6, or 8-core 1.0 GHz, or 8 core 1.2 GHz UltraSPARC T1 processor	0.25
Sun Netra T2000, 1.0 or 1.2 GHz UltraSPARC T1 processor	0.25
SPARC T3 processor	0.25
Sun and Fujitsu UltraSPARC T1 1.4 GHz **Only named servers including:** Sun Fire T2000 Server and SPARC Enterprise T2000 Server*, with 8-core, 1.4 GHz UltraSPARC T1 processor	0.5
Sun T6300, 1.4 GHz UltraSPARC T1 processor	0.5
AMD EPYC™ 7XX1 and AMD Opteron™ Models 13XX, 23XX, 24XX, 32XX, 41XX, 42XX, 43XX, 61XX, 62XX, 63XX, 83XX, 84XX or earlier Multicore chips	0.5
Intel® Xeon® Platinum 81XX, Intel® Xeon® Gold 61XX, Intel® Xeon® Gold 51XX, Intel® Xeon® Silver 41XX, Intel® Xeon® Bronze 31XX, Intel Xeon Series 56XX, Series 65XX, Series 75XX, Series E7-28XX, E7-28XX v2, Series E7-48XX, E7-48XX v2, E7-48XX v3, E7-48XX v4, Series E7-88XX, E7-88XX v2, E7-88XX v3, E7-88XX v4, Series E5-24XX, E5-24XX v2, E5-24XX v3, Series E5-26XX, E5-26XX v2, E5-26XX v3, E5–26XX v4, Series E5-46XX, E5-46XX v2, E5-46XX v3, E5-46XX v4, E3-15XX v5, Series E3-12XX, E3-12XX v2, E3-12XX v3, E3-12XX v4, E3–12XX v5, E5-14XX v3, E5-14XX v2, E5-16XX v4, E5-16XX v3, E5-16XX v2, and E5-16XX or earlier Multicore chips	0.5

E se as CPUs forem Virtuais?

Oracle Partitioning Policy
http://www.oracle.com/us/corporate/pricing/partitioning-070609.pdf

Soft Partitioning:

Soft partitioning segments the operating system using OS resource managers. The operating system limits the number of CPUs where an Oracle database is running by creating areas where CPU resources are allocated to applications within the same operating system. This is a flexible way of managing data processing resources since the CPU capacity can be changed fairly easily, as additional resource is needed.

Examples of such partitioning type include: Solaris 9 Resource Containers, AIX Workload Manager, HP Process Resource Manager, Affinity Management, Oracle VM, and VMware.

Hard Partitioning:

Hard partitioning physically segments a server, by taking a single large server and separating it into distinct smaller systems. Each separated system acts as a physically independent, self-contained server, typically with its own CPUs, operating system, separate boot area, memory, input/output subsystem and network resources.

Oracle-approved hard partitioning technologies as listed in this section of the policy document are permitted as a means to limit the number of software licenses required for any given server or a cluster of servers. Oracle has deemed certain technologies, possibly modified by configuration constraints, as hard partitioning, and no other technology or configuration qualify. Approved hard partitioning technologies include: Physical Domains (also known as PDomains, Dynamic Domains, or Dynamic System Domains), Solaris Zones (also known as Solaris Containers, capped Zones/Containers only), IBM's LPAR (adds DLPAR with AIX 5.2), IBM's Micro-Partitions (capped partitions only), vPar (capped partitions only), nPar, Integrity Virtual Machine (capped partitions only), Secure Resource Partitions (capped partitions only), Fujitsu's PPAR. All approved hard partitioning technologies must have a capped or a maximum number of cores/processors for the given partition.

E se as CPUs forem Virtuais?

Hard Partitioning with Oracle VM Server for x86
http://www.oracle.com/technetwork/server-storage/vm/ovm-hardpart-168217.pdf

Oracle Hard Partition Licensing

To conform to the Oracle hard partition licensing requirement, you must follow the instructions described in this white paper to bind vCPUs to physical CPU threads or cores.

Live migration of CPU pinned virtual machines to another Oracle VM Server is not permitted under the terms of the hard partitioning license. Consequently, for Oracle VM Release 3, any servers running CPU pinned guests must not be included in DRS (Distributed Resource Scheduler) and DPM (Distributed Power Management) policies.

When live migration is used in an Oracle VM server pool, hard partition licensing is not applicable. You must determine the number of virtual machines running the Oracle Software and then license the same number of physical servers (starting with the largest servers based on the CPU core count) up to the total number of the physical servers in the pool. For example, if a customer has a server pool with 32 servers and 20 virtual machines running Oracle Software within the server pool, the customer must license the 20 largest physical servers in the pool. If the customer is running 50 virtual machines with Oracle Software in a pool of 32 physical servers, they need only to license the 32 physical servers in the pool.

Live migration of other virtual machines with non-Oracle software within the server pool is not relevant to Oracle software hard partitioning or has no impact to how Oracle software license is calculated.

Como é o Licenciamento no Cloud?

Licensing Oracle Software in the Cloud Computing Environment
http://www.oracle.com/us/corporate/pricing/cloud-licensing-070579.pdf

Approved Vendors

This policy applies to cloud computing environments from the following vendors: **Amazon Web Services – Amazon Elastic Compute Cloud (EC2), Amazon Relational Database Service (RDS)** and **Microsoft Azure Platform (collectively, the 'Authorized Cloud Environments')**. This policy applies to these Oracle programs.

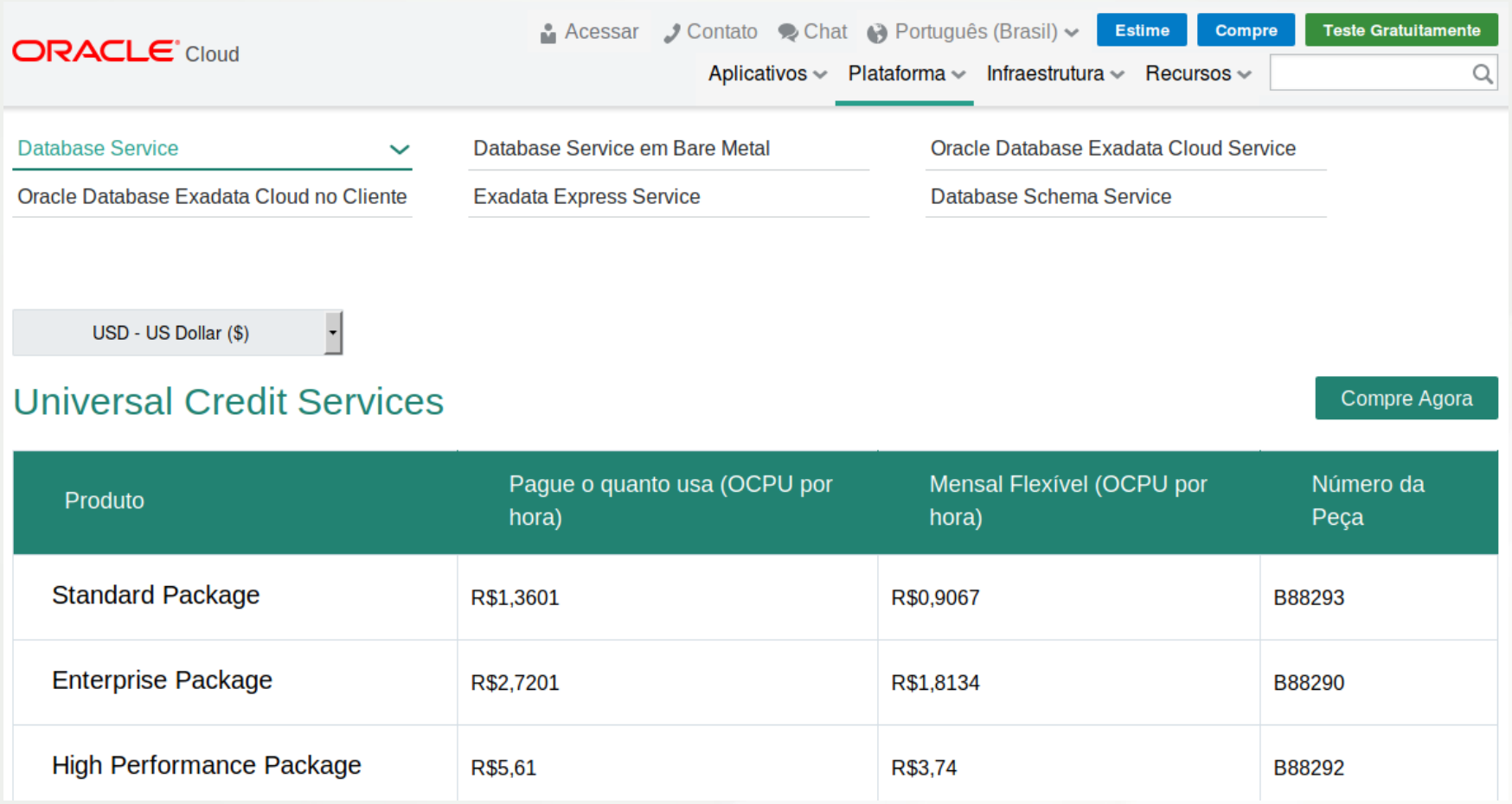
For the purposes of licensing Oracle programs in an Authorized Cloud Environment, customers are required to count as follows:

- **Amazon EC2 and RDS** - count two vCPUs as equivalent to one Oracle Processor license if hyper-threading is enabled, and one vCPU as equivalent to one Oracle Processor license if hyper-threading is not enabled.
- **Microsoft Azure** – count two vCPUs as equivalent to one Oracle Processor license if hyper-threading is enabled, and one vCPU as equivalent to one Oracle Processor license if hyper-threading is not enabled.

When counting Oracle Processor license requirements in Authorized Cloud Environments, the Oracle Processor Core Factor Table is not applicable.

Como é o Licenciamento no Cloud?

Oracle Cloud
https://cloud.oracle.com/pt_BR/opc/database/pricing



Produto	Pague o quanto usa (OCPU por hora)	Mensal Flexível (OCPU por hora)	Número da Peça
Standard Package	R$1,3601	R$0,9067	B88293
Enterprise Package	R$2,7201	R$1,8134	B88290
High Performance Package	R$5,61	R$3,74	B88292

Como é o Licenciamento no Cloud?

Oracle Cloud
https://cloud.oracle.com/pt_BR/opc/database/pricing

BYOL (Bring Your Own License)

Compre Agora

Produto	Pague o quanto usa (OCPU por hora)	Mensal Flexível (OCPU por hora)	Número da Peça
Standard Package	R$0,9792	R$0,6528	B88404
Enterprise Package	R$0,9792	R$0,6528	
High Performance Package	R$0,9792	R$0,6528	
Extreme Performance Package	R$0,9792	R$0,6528	
Enterprise Edition Extreme Performance RAC	R$0,9792	R$0,6528	B88402

Quanto custa para trocar minhas Licenças de 11g para 12c?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

	Oracle Database			
	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Database Products				
Oracle Database				
Standard Edition 2	350	77.00	17,500	3,850.00
Enterprise Edition	950	209.00	47,500	10,450.00
Personal Edition	460	101.20	-	-
Mobile Server	-	-	23,000	5,060.00
NoSQL Database Enterprise Edition	200	44	10,000	2,200.00
Enterprise Edition Options:				
Multitenant	350	77.00	17,500	3,850.00
Real Application Clusters	460	101.20	23,000	5,060.00
Real Application Clusters One Node	200	44.00	10,000	2,200.00
Active Data Guard	230	50.60	11,500	2,530.00
Partitioning	230	50.60	11,500	2,530.00
Real Application Testing	230	50.60	11,500	2,530.00
Advanced Compression	230	50.60	11,500	2,530.00
Advanced Security	300	66.00	15,000	3,300.00
Label Security	230	50.60	11,500	2,530.00
Database Vault	230	50.60	11,500	2,530.00
OLAP	460	101.20	23,000	5,060.00
Advanced Analytics	460	101.20	23,000	5,060.00
Spatial and Graph	350	77.00	17,500	3,850.00
TimesTen Application-Tier Database Cache	460	101.20	23,000	5,060.00
Database In-Memory	460	101.20	23,000	5,060.00
Retail Data Model	800	176.00	40,000	8,800.00
Communications Data Model	1,500	330.00	50,000	11,000.00
Airlines Data Model	800	176.00	40,000	8,800.00
Utilities Data Model	800	176.00	40,000	8,800.00
Database Enterprise Management				
Diagnostics Pack	150	33.00	7,500	1,650.00
Tuning Pack	100	22.00	5,000	1,100.00
Database Lifecycle Management Pack	240	52.80	12,000	2,640.00
Data Masking and Subsetting Pack	230	50.60	11,500	2,530.00
Cloud Management Pack for Oracle Database	150	33.00	7,500	1,650.00

Eu posso ter só o acesso ao MOS (My Oracle Support)?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

	Oracle Database			
	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Database Products				
Oracle Database				
Standard Edition 2	350	77.00	17,500	3,850.00
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Eu posso ter só o acesso ao MOS (My Oracle Support)?

Oracle Store
https://shop.oracle.com

ORACLE Store Browse Products New user? Sign in

Oracle Database Personal Edition

Oracle Database Personal Edition is designed to provide software developers a cost effective, yet full featured Oracle Database environment on which to develop, test and run custom or packaged applications. Designed without technical limits, time bombs or other "gotchas", the Personal Edition provides all the power of the Oracle Database at a very attractive price point. With its ability to handle virtually any type or size of data (from gigabytes of transactions to terabytes of XML data), the Personal Edition takes you a significant step towards mastery of the Oracle environment.

Please Note: Not all versions of Linux are supported. Refer to the installation guide, found in the Technical Specifications link below, to ensure compatibility before adding to your cart.

- Learn More
- Technical Specifications

To quote or purchase this product, contact Sales for assistance at +55 11 5187 7500.

R$1,552.00 / Named User Plus

Métrica:
Named User Plus

Duração:
Perpétua

Software Update License and Support (Primeiro ano) R$341.37

Eu posso utilizar Oracle RAC com a SE / SE1 /SE2?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

~~Standad Edition (SE): Sim, limite de 4 Sockets.~~
~~Standad Edition One (SE1): Não pode.~~
Standad Edition Two (SE2): Sim, limite de 2 Sockets.

Em um RAC, preciso de Licença para todos os Nós?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

Resposta: Sim. A Licença é por Processador ou Named User, não por servidor. E se for Enterprise Edition, o Oracle RAC é uma Option.

Eu tenho um Oracle RAC de dois nós, mas eu só uso um deles. Preciso licenciar todos os Nós?

Resposta: Sim. Para esta situação, existe a Option (ou seja, apenas EE) Oracle RAC One Node, que é mais barata.

	Oracle Database			
	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Database Products				
Oracle Database				
Standard Edition 2	350	77.00	17,500	3,850.00
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Airlines Data Model	800	176.00	40,000	8,800.00
Utilities Data Model	800	176.00	40,000	8,800.00

Quantos Banco de Dados / Instâncias posso ter?

Resposta: A Licença é por Processador ou Named User, não por Banco / Instância.

Database Environments

As a general rule, Oracle's pricing practices do not restrict the number of database instances a customer installs on a server, nor do they differentiate between single server and networked environments. Multiple environments may be installed on the same server. All users of all environments must be properly licensed.

Quantos ORACLE HOME posso ter?

Resposta: A Licença é por Processador ou Named User, não por Banco / Instância.

Database Environments

As a general rule, Oracle's pricing practices do not restrict the number of database instances a customer installs on a server, nor do they differentiate between single server and networked environments. Multiple environments may be installed on the same server. All users of all environments must be properly licensed.

Eu preciso de Licença para o meu Standby?

Oracle Licensing Data Recovery Environments
http://www.oracle.com/us/corporate/pricing/data-recovery-licensing-070587.pdf

Resposta: Depende de como é implementado seu Standby.

- Se for uma máquina de testes de RESTORE / RECOVER de seus Backups (para valida-los), e você fizer este teste até 4 vezes por ano (e cada teste não pode passar de 2 dias), não é necessário Licença.

- Se for um Cluster de Failover (não é o Oracle Data Guard), onde o Banco de Dados é um só, que pode ser acessado por apenas uma máquina de cada vez (ele não é copiado), como por exemplo em Windows Cluster ou o IBM HACMP, só é necessário de Licença se você utilizar o nó passivo (ativa-lo e usar o Banco de Dados a partir dele) mais que 10 vezes por ano.

- Se for um Standby manual, que é uma nova cópia (RESTORE) do Banco de Dados para outra máquina, e onde você regularmente guarda ou aplica ARCHIVES gerados na Produção (seja via NFS, Windows Share, Shell Script, ou mesmo manualmente), você precisa de Licença para o Standby.

- Se o Standby for um Oracle Data Guard, é necessário Licença, e Enterprise Edition. Se você quiser utilizar o Active Data Guard (onde o Banco de Dados Standby fica aberto para leitura mesmo durante o RECOVER), ainda tem que pagar esta Option.

Posso utilizar o Oracle Database da OTN para Testes?

Database Licensing
http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf

OTN License Agreement
http://www.oracle.com/technetwork/licenses/standard-license-152015.html

Resposta: A Licença OTN permite que você utilize o Oracle Database para desenvolver, testar, criar um protótipo e demonstrar uma aplicação que utilize o Oracle Database, mas não para propósitos comerciais ou de produção.

Development Environment: Customers may use Oracle Full Use licenses in a development environment. Customers also may download Oracle Database products from the Oracle Technology Network (OTN) at http://otn.oracle.com. In order to download the Oracle Database product from OTN, customers must accept the terms of the OTN License Agreement. Subject to the full terms of the OTN License Agreement, **this limited license allows the user to develop applications using the licensed products as long as such applications have not been used for any data processing, business, commercial, or production purposes.** Customers may not use Oracle Database, as licensed under the OTN License Agreement, in connection with any classroom activity, internal data processing operations, or any other commercial or production use purposes.

Posso utilizar o Oracle Database da OTN para Testes?

OTN License Agreement
http://www.oracle.com/technetwork/licenses/standard-license-152015.html

License Rights and Restrictions
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- disclose results of any Program benchmark tests without Oracle's prior consent.

Eu preciso de Licença para Homologação / Desenvolvimento?

Database Licensing
http://www.oracle.com/us/corporate/pricing/databaselicensing-070584.pdf

Resposta: Sim. O que você pode fazer para gastar menos com as Licenças de Homologação e Suporte, é utilizar Named User nestes ambientes, se você puder identificar os usuários (a pessoa que faz a homologação irá se conectar no Oracle Database com o usuário RICARDO, por exemplo).

Test Environment: All programs used in a test environment must be licensed under an OMA, OLSA, or other appropriate Oracle (or Oracle authorized reseller) license agreement.

Que Edição está instalada?

```
SQL> SELECT BANNER FROM V$VERSION;

BANNER
--------------------------------------------------------------------------------
Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production
PL/SQL Release 12.2.0.1.0 - Production
CORE    12.2.0.1.0      Production
TNS for Linux: Version 12.2.0.1.0 - Production
NLSRTL Version 12.2.0.1.0 - Production

SQL>
```

Que Features estão instaladas?

```
SQL> SELECT * FROM V$OPTION ORDER BY VALUE, PARAMETER;

PARAMETER                                VALUE          CON_ID
---------------------------------------- ---------- ----------
ASM Proxy Instance                       FALSE               0
I/O Server                               FALSE               0
Management Database                      FALSE               0
Oracle Database Vault                    FALSE               0
Oracle Label Security                    FALSE               0
Unified Auditing                         FALSE               0
Active Data Guard                        TRUE                0
Adaptive Execution Plans                 TRUE                0
Advanced Analytics                       TRUE                0
Advanced Compression                     TRUE                0
Advanced Index Compression               TRUE                0
Advanced replication                     TRUE                0
Application Role                         TRUE                0
Automatic Data Optimization              TRUE                0
Automatic Storage Management             TRUE                0
Backup Encryption                        TRUE                0
Basic Compression                        TRUE                0
Bit-mapped indexes                       TRUE                0
Block Change Tracking                    TRUE                0
Block Media Recovery                     TRUE                0
Cache Fusion Lock Accelerator            TRUE                0
Change Data Capture                      TRUE                0
Coalesce Index                           TRUE                0
```

Que Features estão instaladas?

Checking if products/components have been installed

Starting with releases 11.1.0.7.x and above all products are installed by default and the option to customize the product/component selection is no longer possible. The only customization that can be done on these releases is to enable or disable certain products/components which will be covered in the following sections.

```
SQL> SELECT PARAMETER, VALUE FROM V$OPTION ORDER BY 1;

PARAMETER                                VALUE
---------------------------------------- --------------
Active Data Guard                        TRUE
Adaptive Execution Plans                 TRUE
Advanced Analytics                       TRUE
Advanced Compression                     TRUE
Advanced Index Compression               TRUE
Advanced replication                     TRUE
Application Role                         TRUE
ASM Proxy Instance                       FALSE
Automatic Data Optimization              TRUE
Automatic Storage Management             FALSE
Backup Encryption                        TRUE
Basic Compression                        TRUE
Bit-mapped indexes                       TRUE
Block Change Tracking                    TRUE
```

Como remover Features instaladas?

How to Check and Enable/Disable Oracle Binary Options (Doc ID 948061.1)

In this Document


```
[ricardo@Melquior ~]$ chopt disable olap

Writing to /home/ricardo/oracle/base/product/12.1.0.2/db_1/install/disable_olap
/usr/bin/make -f /home/ricardo/oracle/base/product/12.1.0.2/db_1/rdbms/lib/ins_
/usr/bin/make -f /home/ricardo/oracle/base/product/12.1.0.2/db_1/rdbms/lib/ins_

[ricardo@Melquior ~]$
```

```
[ricardo@Melquior ~]$ chopt disable rat

Writing to /home/ricardo/oracle/base/product/12.1.0.2/db_1/install/disable_rat.
/usr/bin/make -f /home/ricardo/oracle/base/product/12.1.0.2/db_1/rdbms/lib/ins_
/usr/bin/make -f /home/ricardo/oracle/base/product/12.1.0.2/db_1/rdbms/lib/ins_

[ricardo@Melquior ~]$
```

Que Features já foram utilizadas?

```
SQL> SELECT NAME, DETECTED_USAGES, CURRENTLY_USED, FIRST_USAGE_DATE, LAST_USAGE_DATE FROM DBA_FEATURE_USAGE_STATISTICS ORDER BY LAST_USAGE_DATE, NAME;

NAME                                                             DETECTED_USAGES CURRE FIRST_USA LAST_USAG
---------------------------------------------------------------- --------------- ----- --------- ---------
ACFS                                                                           1 TRUE  17-JUL-18 17-JUL-18
ASM Filter Driver                                                              1 TRUE  17-JUL-18 17-JUL-18
Adaptive Plans                                                                 1 TRUE  17-JUL-18 17-JUL-18
Automatic Maintenance - Optimizer Statistics Gathering                         1 TRUE  17-JUL-18 17-JUL-18
Automatic Maintenance - SQL Tuning Advisor                                     1 TRUE  17-JUL-18 17-JUL-18
Automatic Maintenance - Space Advisor                                          1 TRUE  17-JUL-18 17-JUL-18
Automatic Reoptimization                                                       1 TRUE  17-JUL-18 17-JUL-18
Automatic SQL Execution Memory                                                 1 TRUE  17-JUL-18 17-JUL-18
Automatic Segment Space Management (system)                                    1 TRUE  17-JUL-18 17-JUL-18
Automatic Segment Space Management (user)                                      1 TRUE  17-JUL-18 17-JUL-18
Automatic Storage Management                                                   1 TRUE  17-JUL-18 17-JUL-18
Automatic Undo Management                                                      1 TRUE  17-JUL-18 17-JUL-18
Character Set                                                                  1 TRUE  17-JUL-18 17-JUL-18
DBMS_STATS Incremental Maintenance                                             1 TRUE  17-JUL-18 17-JUL-18
Deferred Segment Creation                                                      1 TRUE  17-JUL-18 17-JUL-18
Flex ASM                                                                       1 TRUE  17-JUL-18 17-JUL-18
Locally Managed Tablespaces (system)                                           1 TRUE  17-JUL-18 17-JUL-18
Locally Managed Tablespaces (user)                                             1 TRUE  17-JUL-18 17-JUL-18
Logfile Multiplexing                                                           1 TRUE  17-JUL-18 17-JUL-18
Oracle Java Virtual Machine (system)                                           1 TRUE  17-JUL-18 17-JUL-18
Oracle Multitenant                                                             1 TRUE  17-JUL-18 17-JUL-18
Oracle Utility External Table (ORACLE_LOADER)                                  1 TRUE  17-JUL-18 17-JUL-18
Partitioning (system)                                                          1 TRUE  17-JUL-18 17-JUL-18
Real Application Clusters (RAC)                                                1 TRUE  17-JUL-18 17-JUL-18
Real-Time SQL Monitoring                                                       1 TRUE  17-JUL-18 17-JUL-18
Recovery Area                                                                  1 TRUE  17-JUL-18 17-JUL-18
Result Cache                                                                   1 TRUE  17-JUL-18 17-JUL-18
SQL Plan Directive                                                             1 TRUE  17-JUL-18 17-JUL-18
SecureFiles (system)                                                           1 TRUE  17-JUL-18 17-JUL-18
SecureFiles (user)                                                             1 TRUE  17-JUL-18 17-JUL-18
Server Parameter File                                                          1 TRUE  17-JUL-18 17-JUL-18
Traditional Audit                                                              1 TRUE  17-JUL-18 17-JUL-18
Unified Audit                                                                  1 TRUE  17-JUL-18 17-JUL-18
ACFS Encryption                                                                0 FALSE
ACFS Snapshot                                                                  0 FALSE
ADDM                                                                           0 FALSE
```

Que Features são da SE2? Que Features são EE?

10gR1
https://docs.oracle.com/cd/B14117_01/license.101/b13552/editions.htm

10gR2
https://docs.oracle.com/cd/B19306_01/license.102/b14199/editions.htm

11gR1
https://docs.oracle.com/cd/B28359_01/license.111/b28287/editions.htm

11gR2
https://docs.oracle.com/cd/E11882_01/license.112/e47877/editions.htm

12cR1
https://docs.oracle.com/database/121/DBLIC/editions.htm

12cR2
https://docs.oracle.com/en/database/oracle/oracle-database/12.2/dblic/Licensing-Information.html

18c
https://docs.oracle.com/en/database/oracle/oracle-database/18/dblic/Licensing-Information.html

Que Features de Backup / Restore são EE?

- Duplexed Backup Sets
- Block Change Tracking
- Unused Block Compression Backup
- Block-Level Recovery
- Automatic Block Repair
- Parallel Backup and Recovery
- TSPITR
- TPITR
- Trial Recovery
- Flashback
- Cross-Platform Backup & Recovery
- Transportable Tablespace and Full Transportable Database
- Compression

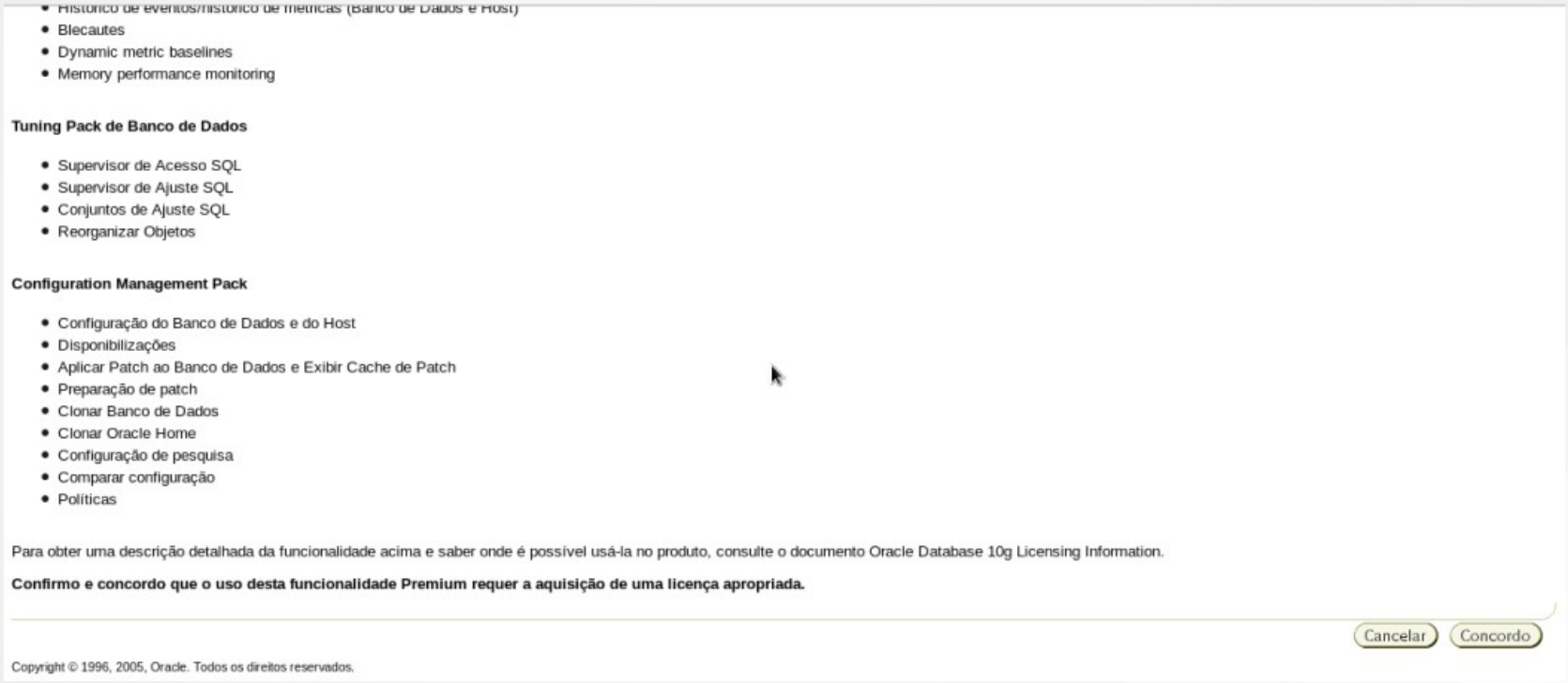
Que Features são Options?

Oracle Price Lists
http://www.oracle.com/us/corporate/pricing/price-lists/index.html

	Oracle Database			
	Named User Plus	Software Update License & Support	Processor License	Software Update License & Support
Database Products				
Oracle Database				
Standard Edition 2	350	77.00	17,500	3,850.00
Enterprise Edition	950	209.00	47,500	10,450.00
Personal Edition	460	101.20	-	-
Mobile Server	-	-	23,000	5,060.00
NoSQL Database Enterprise Edition	200	44	10,000	2,200.00
Enterprise Edition Options:				
Multitenant	350	77.00	17,500	3,850.00
Real Application Clusters	460	101.20	23,000	5,060.00
Real Application Clusters One Node	200	44.00	10,000	2,200.00
Active Data Guard	230	50.60	11,500	2,530.00
Partitioning	230	50.60	11,500	2,530.00
Real Application Testing	230	50.60	11,500	2,530.00
Advanced Compression	230	50.60	11,500	2,530.00
Advanced Security	300	66.00	15,000	3,300.00
Label Security	230	50.60	11,500	2,530.00
Database Vault	230	50.60	11,500	2,530.00
OLAP	460	101.20	23,000	5,060.00
Advanced Analytics	460	101.20	23,000	5,060.00
Spatial and Graph	350	77.00	17,500	3,850.00
TimesTen Application-Tier Database Cache	460	101.20	23,000	5,060.00
Database In-Memory	460	101.20	23,000	5,060.00
Retail Data Model	800	176.00	40,000	8,800.00
Communications Data Model	1,500	330.00	50,000	11,000.00
Airlines Data Model	800	176.00	40,000	8,800.00
Utilities Data Model	800	176.00	40,000	8,800.00
Database Enterprise Management				
Diagnostics Pack	150	33.00	7,500	1,650.00
Tuning Pack	100	22.00	5,000	1,100.00
Database Lifecycle Management Pack	240	52.80	12,000	2,640.00
Data Masking and Subsetting Pack	230	50.60	11,500	2,530.00
Cloud Management Pack for Oracle Database	150	33.00	7,500	1,650.00

Posso utilizar o Enterprise Manager na SE / SE1 / SE2?

Posso utilizar o Enterprise Manager na SE / SE1 / SE2?



Posso utilizar o Enterprise Manager na SE / SE1 / SE2?

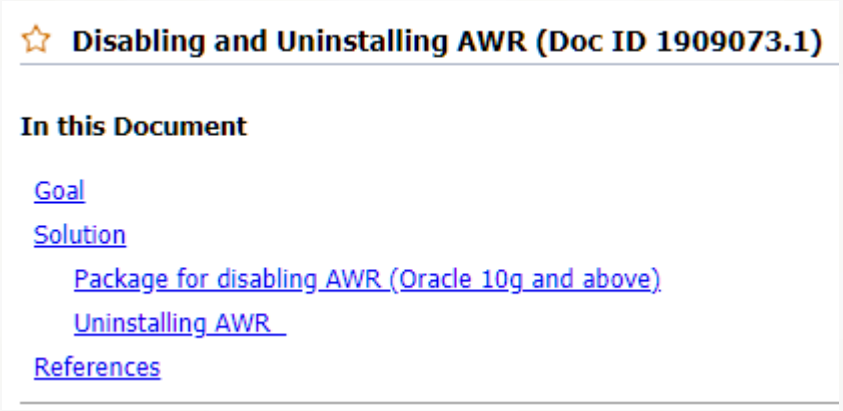
Database Reference
https://docs.oracle.com/cd/E11882_01/server.112/e40402/initparams038.htm#REFRN10296

CONTROL_MANAGEMENT_PACK_ACCESS

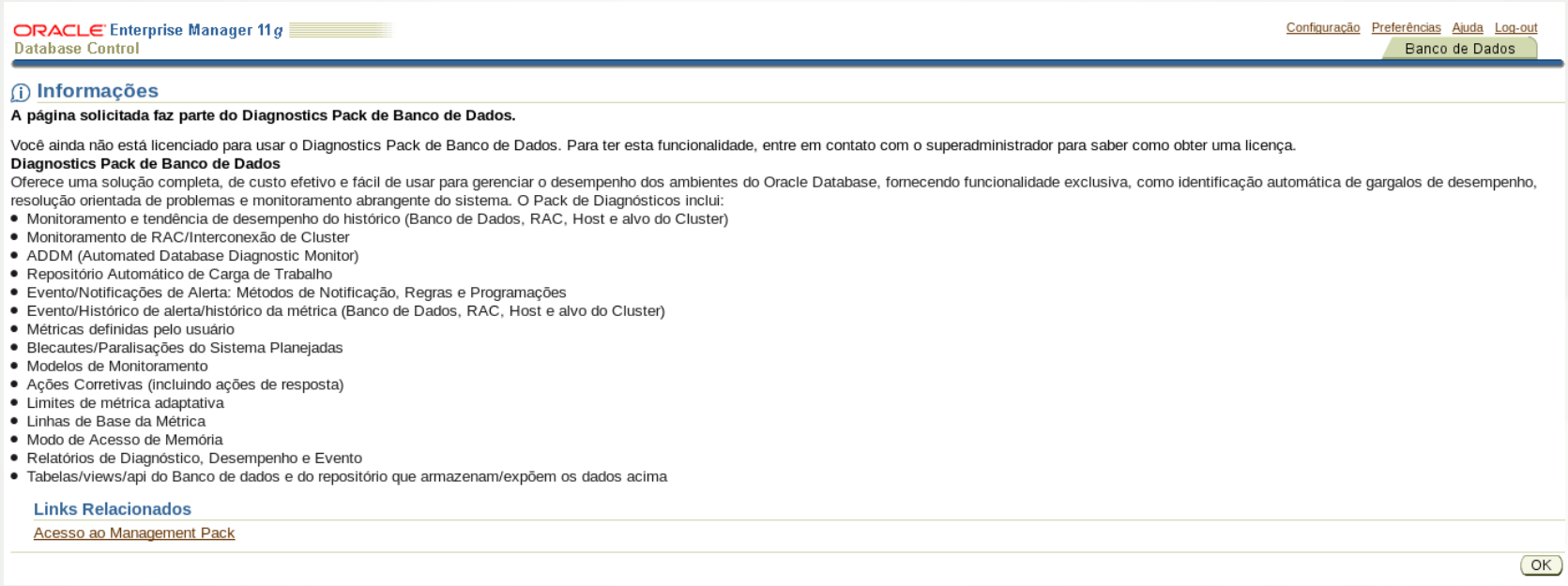
Property	Description
Parameter type	String
Syntax	`CONTROL_MANAGEMENT_PACK_ACCESS = { NONE | DIAGNOSTIC | DIAGNOSTIC+TUNING }`
Default value	Enterprise Edition: `DIAGNOSTIC+TUNING` All other editions: `NONE`
Modifiable	`ALTER SYSTEM`
Basic	No

Posso utilizar o Enterprise Manager na SE / SE1 / SE2?

My Oracle Support
https://support.oracle.com

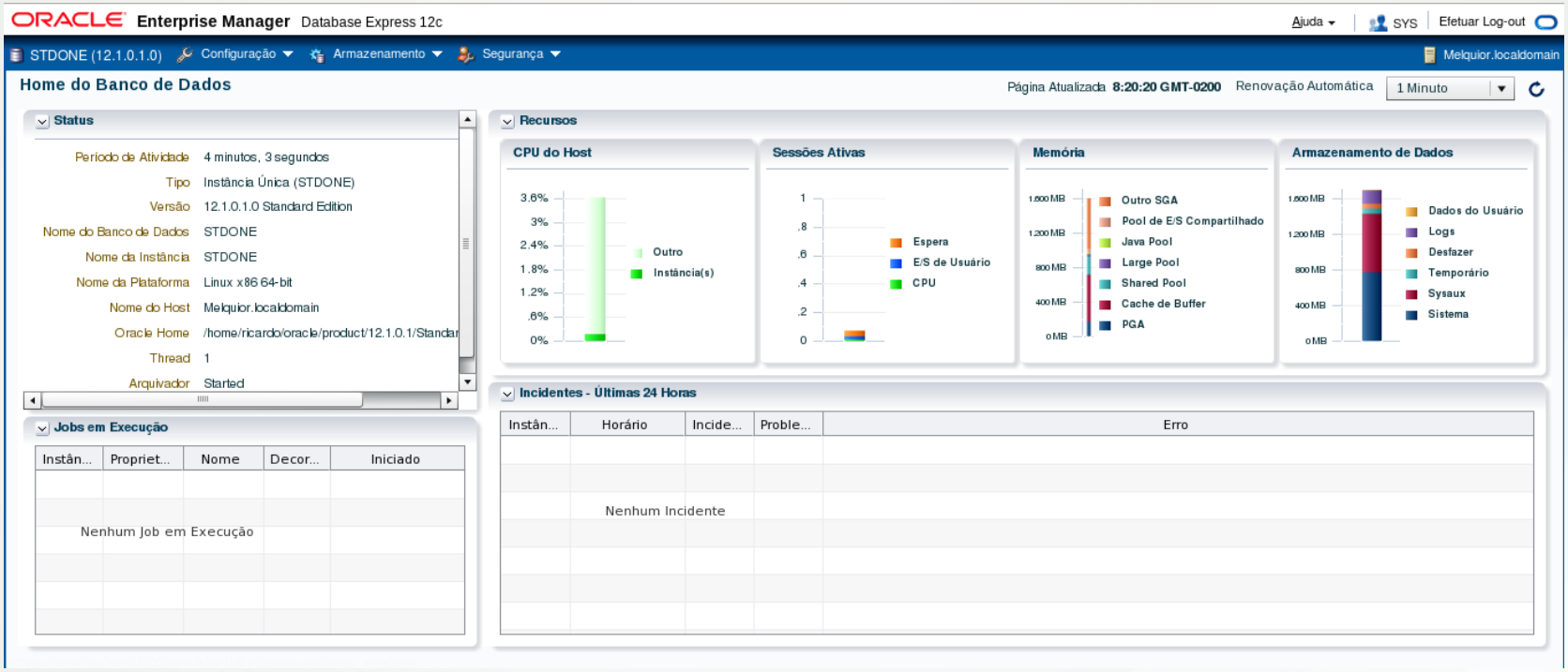


Posso utilizar o Enterprise Manager na SE / SE1 / SE2?



Posso utilizar o Enterprise Manager na SE / SE1 / SE2?

Posso utilizar o Enterprise Manager na SE / SE1 / SE2?



O Grid Control / Cloud Control deve ser licenciado?

Enterprise Manager Licensing Information User Manual
https://docs.oracle.com/cd/E24628_01/doc.121/e24474/ch10_base_functionality.htm

10 Base Enterprise Manager Functionality

This chapter outlines the list of features that are included with the base functionality of Oracle Enterprise Manager:

- Base Framework Features
- Base Database Management Features
- Base Middleware Management Features
- Base Engineered Systems Management Features
- Server, Storage, and Virtualization Management Features

The base installation of Enterprise Manager Cloud Control 12*c* includes several features free of charge with the purchase of any Oracle software license or Support contract.

The release of Oracle Enterprise Manager Cloud Control 12*c* makes several licensing changes. Some features that were part of licensed packs are now included in the base functionality.

O Grid Control / Cloud Control deve ser licenciado?

Enterprise Manager Licensing Information User Manual
https://docs.oracle.com/cd/E73210_01/OEMLI/GUID-B7FDEFFE-DECB-4826-A3C8-7660B013C5DE.htm

2 Enterprise Database Management

This chapter describes the management packs offered by Enterprise Manager in support of Oracle Database. The following management packs are included:

- Oracle Diagnostics Pack
- Oracle Tuning Pack
- Database Lifecycle Management Pack for Oracle Database
- Oracle Data Masking and Subsetting Pack
- Legacy: Configuration Management Pack for Oracle Database
- Legacy: Change Management Pack for Oracle Database
- Legacy: Provisioning and Patch Automation Pack for Oracle Database

These management packs can be purchased only with Enterprise Edition. The features in these packs are accessible through Oracle Enterprise Manager Database Control, Oracle Enterprise Manager Cloud Control, Oracle Enterprise Manager Database Express, and APIs provided with Oracle Database software.

O Catálogo do RMAN deve ser licenciado?

Oracle Database Editions
https://docs.oracle.com/cd/B28359_01/license.111/b28287/editions.htm#DBLIC110

Infrastructure Repository Databases
A separate Oracle Database can be installed and used as a Recovery Manager (RMAN) repository without additional license requirements, provided that all the Oracle databases managed in this repository are correctly licensed. This repository database may also be used for the Oracle Enterprise Grid Control repository. It may not be used or deployed for other uses.

A separate Oracle Database can be installed and used as an Oracle Enterprise Manager Grid Control (OEM Grid Control) repository without additional license requirements, provided that all the targets (databases, applications, and so forth) managed in this repository are correctly licensed. This database may also be used for the RMAN repository. It may not be used or deployed for other uses.

O que é o Diagnostics Pack?

Oracle Diagnostics Pack

Oracle Diagnostics Pack provides automatic performance diagnostic and advanced system monitoring functionality.

Features

Oracle Diagnostics Pack includes the following features:

- Performance monitoring and diagnostics (database and host)
- Automatic Workload Repository (AWR)
- AWR Warehouse
- Automatic Database Diagnostic Monitor (ADDM)
- Compare Period ADDM
- Real Time ADDM
- Active Session History (ASH)
- ASH analytics

O que é o Diagnostics Pack?

Licensed Command-Line APIs

Oracle Diagnostics Pack features can also be accessed by way of database server APIs and command-line interfaces:

- The `DBMS_WORKLOAD_REPOSITORY` package is part of this pack.
- The `DBMS_ADDM` package is part of this pack.
- The `DBMS_ADVISOR` package is part of this pack if you specify ADDM as the value of the `advisor_name` parameter, or if you specify for the value of the `task_name` parameter any value starting with the ADDM prefix.
- The `DBMS_WORKLOAD_REPLAY.COMPARE_PERIOD_REPORT` function is part of this pack.
- The `V$ACTIVE_SESSION_HISTORY` dynamic performance view and its underlying table, `X$ASH`, are part of this pack.
- The `DBA_STREAMS_TP_PATH_BOTTLENECK` view is part of this pack.
- All views beginning with `DBA_ADDM_` are part of this pack.
- Some data in `DBA_STREAMS_TP_COMPONENT_STAT` requires Oracle Diagnostics Pack. The following filter clause to any query on `DBA_STREAMS_TP_COMPONENT_STAT` shows Diagnostics-Pack-dependent data:

- All data dictionary views beginning with the prefix `DBA_HIST_` are part of this pack, along with their underlying tables.The only exception are the views: `DBA_HIST_SNAPSHOT`, `DBA_HIST_DATABASE_INSTANCE`, `DBA_HIST_SNAP_ERROR`, `DBA_HIST_SEG_STAT`, `DBA_HIST_SEG_STAT_OBJ`, and `DBA_HIST_UNDOSTAT`. They can be used without the Oracle Diagnostics Pack license.
- All data dictionary views with the prefix `DBA_ADVISOR_` are part of this pack if queries to these views return rows with the value `ADDM` in the `ADVISOR_NAME` column or a value of `ADDM*` in the `TASK_NAME` column or the corresponding `TASK_ID`.
- The following reports found in the `/rdbms/admin/` directory of the Oracle home directory are part of this pack: `awrrpt.sql`, `awrrpti.sql`, `awrgrpt.sql`, `awrgrpti.sql`, `awrgdrpt.sql`, `awrgdrpi.sql`, `addmrpt.sql`, `addmrpti.sql`, `ashrpt.sql`, `ashrpti.sql`, `awrddrpt.sql`, `awrddrpi.sql`, `awrsqrpi.sql`, `awrsqrpt.sql`, `awrextr.sql`, `awrload.sql`, `awrinfo.sql`, `spawrio.sql`, and `spawrrac.sql`.

Licensed Repository Views

- **Monitoring Views**
  - `MGMT$ALERT_ANNOTATIONS`
  - `MGMT$ALERT_CURRENT`
  - `MGMT$ALERT_HISTORY`
  - `MGMT$ALERT_NOTIF_LOG`
  - `MGMT$AVAILABILITY_CURRENT`

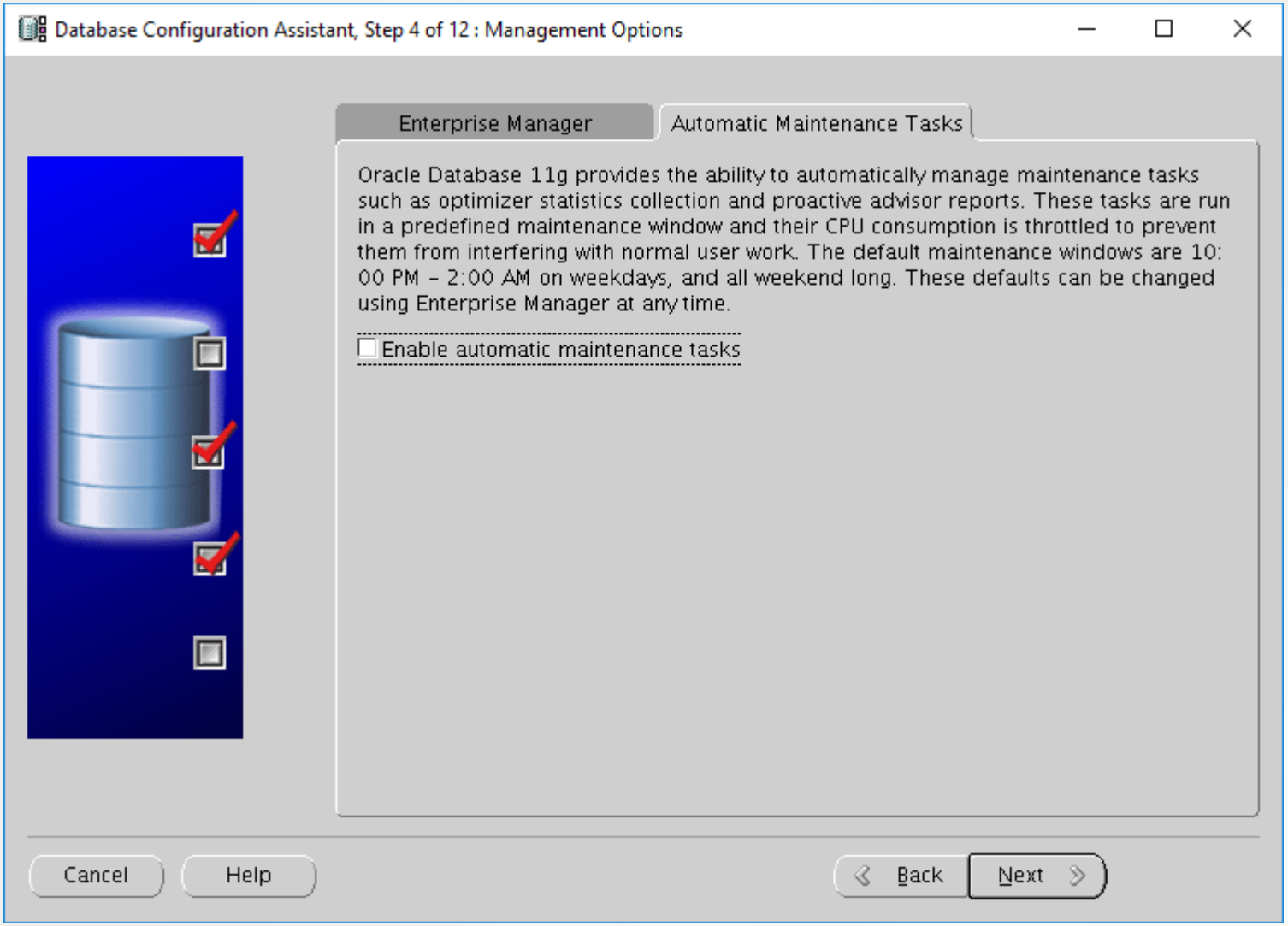
O que é o Tuning Pack?

Features

Oracle Tuning Pack includes the following features:

- SQL Access Advisor
- SQL Tuning Advisor
- Oracle Database In-Memory Advisor
- Automatic SQL Tuning
- SQL Tuning Sets
- SQL Profiles
- Real-time SQL and PL/SQL Monitoring
- Real-time Database Operations Monitoring
- Reorganize objects

O que é o Tuning Pack?



Que outros Packs posso estar utilizando?

Options and Packs
http://docs.oracle.com/database/121/DBLIC/options.htm

Licensed Repository Views

The following repository views are part of the Database Lifecycle Management Pack for Oracle Database:

- **Compliance Views**
  - MGMT$CCC_ALL_OBS_BUNDLES
  - MGMT$CCC_ALL_OBSERVATIONS
  - MGMT$CCC_DIAG_ANALYTICS
  - MGMT$CCC_DIAG_QUEUEBACKLOG
  - MGMT$COMPLIANCE_STANDARD
  - MGMT$COMPLIANCE_STANDARD_GROUP

Posso utilizar COMPRESSION em SE / SE1 / SE2?

A Complete Understanding of RMAN Compression – Doc ID 563427.1
https://support.oracle.com

LOW - Least impact on backup throughput and suited for environments where CPU resources are the limiting factor.
MEDIUM - Recommended for most environments. Good combination of compression ratios and speed
HIGH - Best suited for backups over slower networks where the limiting factor is network speed

NOTE: Only BASIC compression is allowed in Standard Edition

Posso utilizar COMPRESSION no Data Pump?

Database Licensing Information - Options and Packs
https://docs.oracle.com/cd/E11882_01/license.112/e47877/options.htm#DBLIC142

The Oracle Advanced Compression option contains the following features:

- Data Guard Network Compression
- Data Pump Compression (`COMPRESSION=METADATA_ONLY` does not require the Advanced Compression option)
- Multiple RMAN Compression Levels (`RMAN` `DEFAULT` `COMPRESS` does not require the Advanced Compression option)
- OLTP Table Compression
- SecureFiles Compression and Deduplication
- Flashback Data Archive (formerly known as Total Recall)

  For releases earlier than Oracle Database 11*g* Release 2 (11.2.0.4): You must license the Oracle Advanced Compression option to use Flashback Data Archive.

  Beginning with Oracle Database 11*g* Release 2 (11.2.0.4): Flashback Data Archive—without history table optimization—is available in all editions.
- Optimization for Flashback Data Archive history tables. Available starting with Oracle Database 11*g* Release 2 (11.2.0.4).
- Exadata Flash Cache Compression: This feature can be enabled only on Exadata storage servers, and all database processors that access the Exadata storage servers must be licensed for Oracle Advanced Compression.

Posso utilizar BASIC TABLE COMPRESSION no SE / SE1 / SE2?

Licensing Information User Manual
https://docs.oracle.com/en/database/oracle/oracle-database/12.2/dblic/Licensing-Information.html

Basic Table Compression	N	Y	Y	N	Y	Y	Y	Y

Posso utilizar PARALLEL em Backup na SE / SE1 / SE2?

Licensing Information
https://docs.oracle.com/en/database/oracle/oracle-database/12.2/dblic/Licensing-Information.html

Parallel query/DML	N	Y	Y	N	Y	Y	Y	Y
Parallel statistics gathering	N	Y	Y	N	Y	Y	Y	Y
Parallel index build/scans	N	Y	Y	N	Y	Y	Y	Y
Parallel Data Pump Export/Import	N	Y	Y	N	Y	Y	Y	Y
In-memory Parallel Execution	N	Y	Y	N	Y	Y	Y	Y
Parallel Statement Queuing	N	Y	Y	N	Y	Y	Y	Y
Parallel capture and apply via XStream	N	Y	Y	N	Y	Y	Y	Y

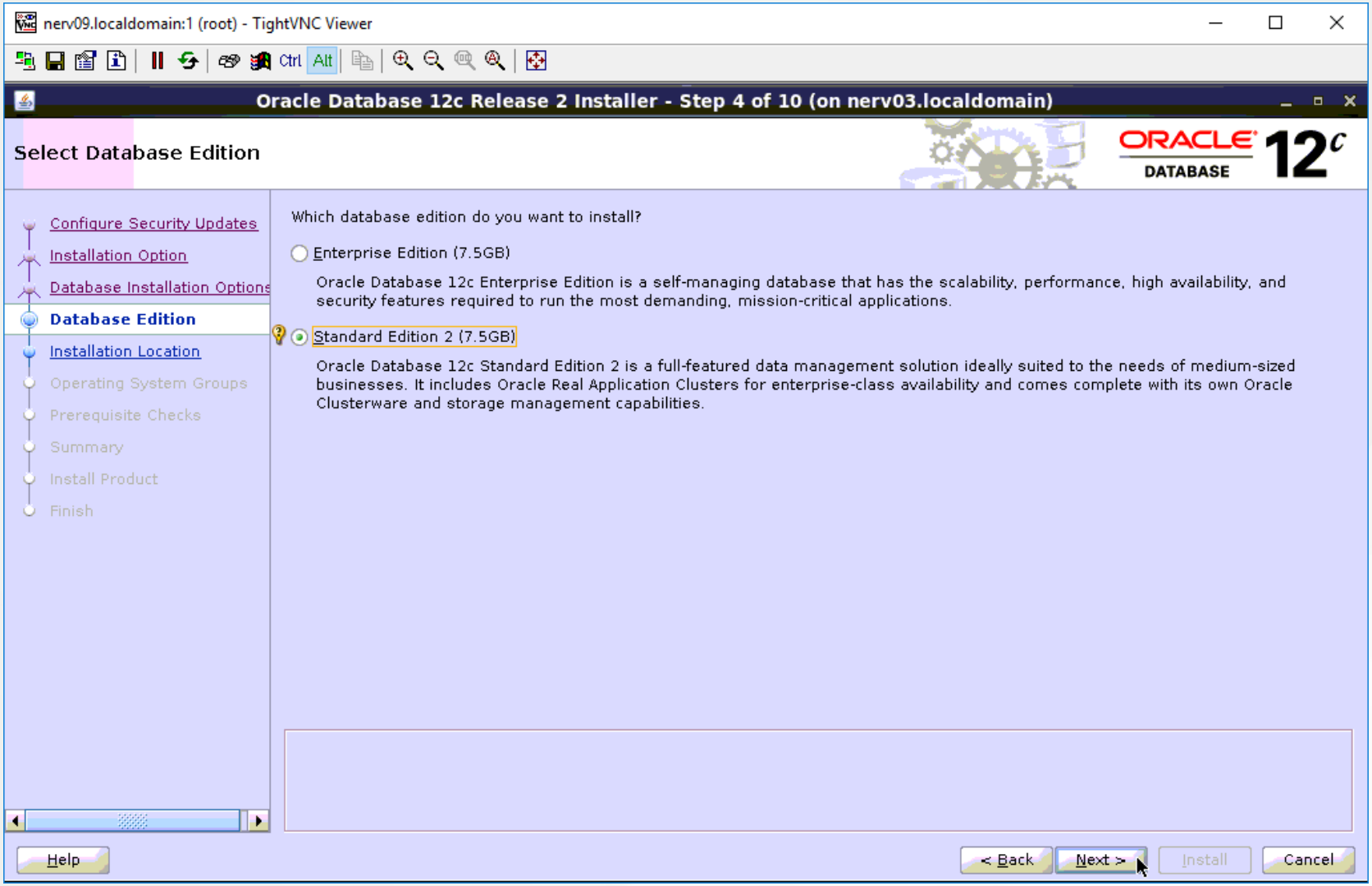
O que é ULA?

License Management Services - Unlimited License Agreement (ULA) Services
http://www.oracle.com/us/corporate/license-management-services/unlimited-license-agreement-2613729.pdf

Unlimited License Agreement

An Unlimited License Agreement (ULA) is a time-based contract for unlimited use for a subset of Oracle products. At the end of the term, the customer may choose to renew the ULA or declare and certify usage to Oracle. If the customer chooses not to renew, licenses will be assigned based on the customer's current usage and certification at the end date of the ULA.

Como criar um banco com o Licenciamento correto?



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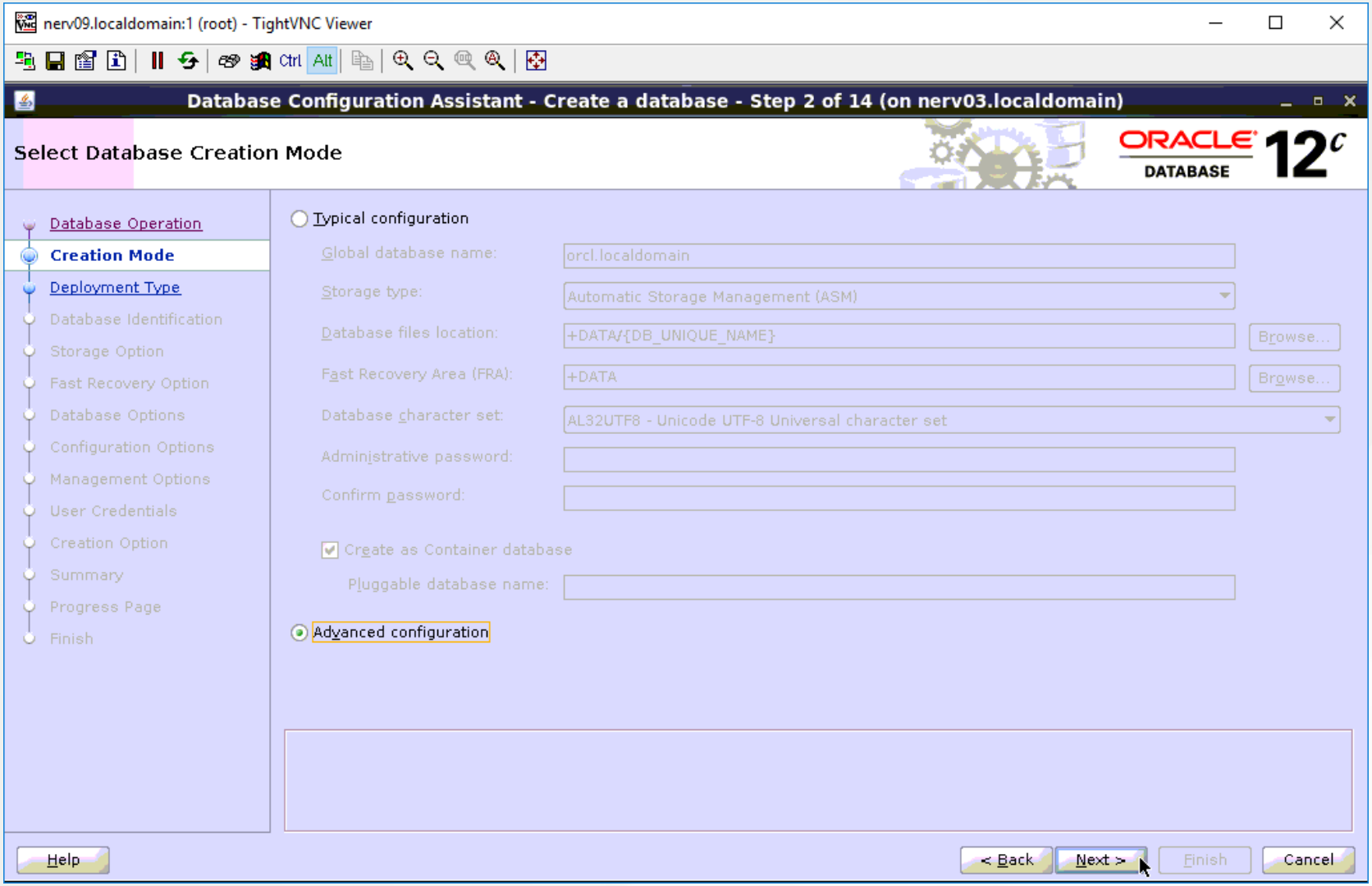
Como criar um banco com o Licenciamento correto?



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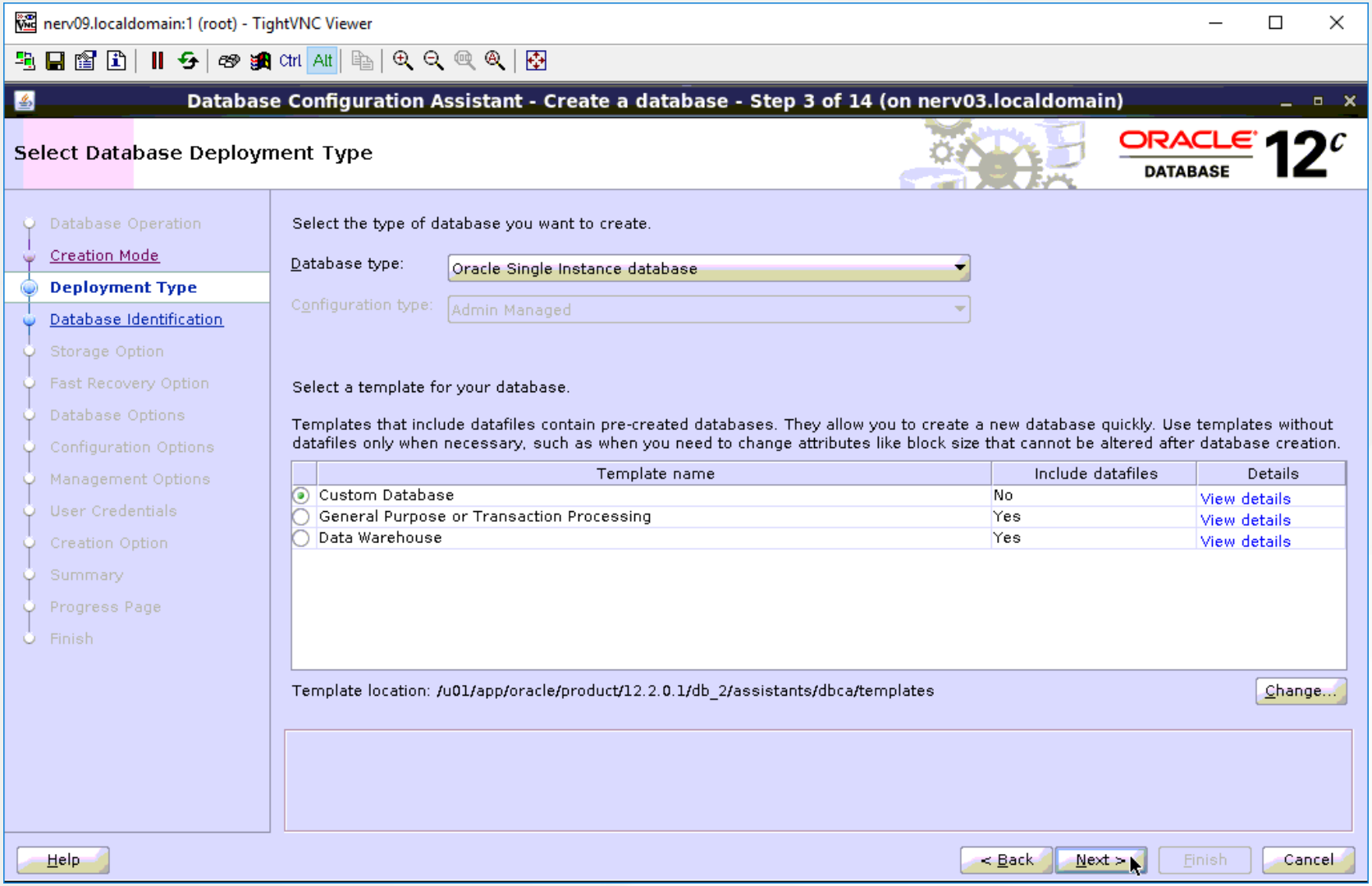
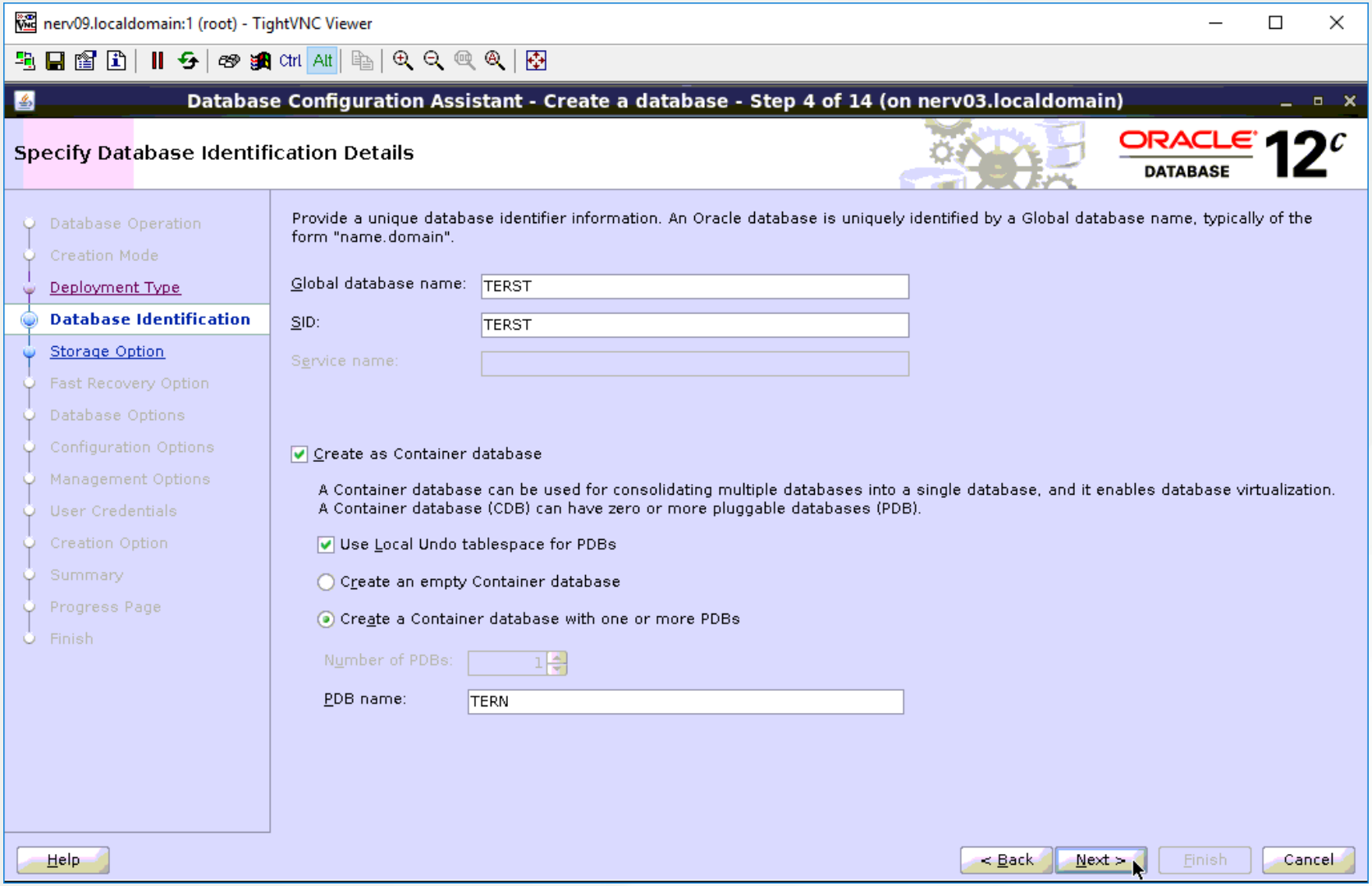
Como criar um banco com o Licenciamento correto?



217

Como criar um banco com o Licenciamento correto?



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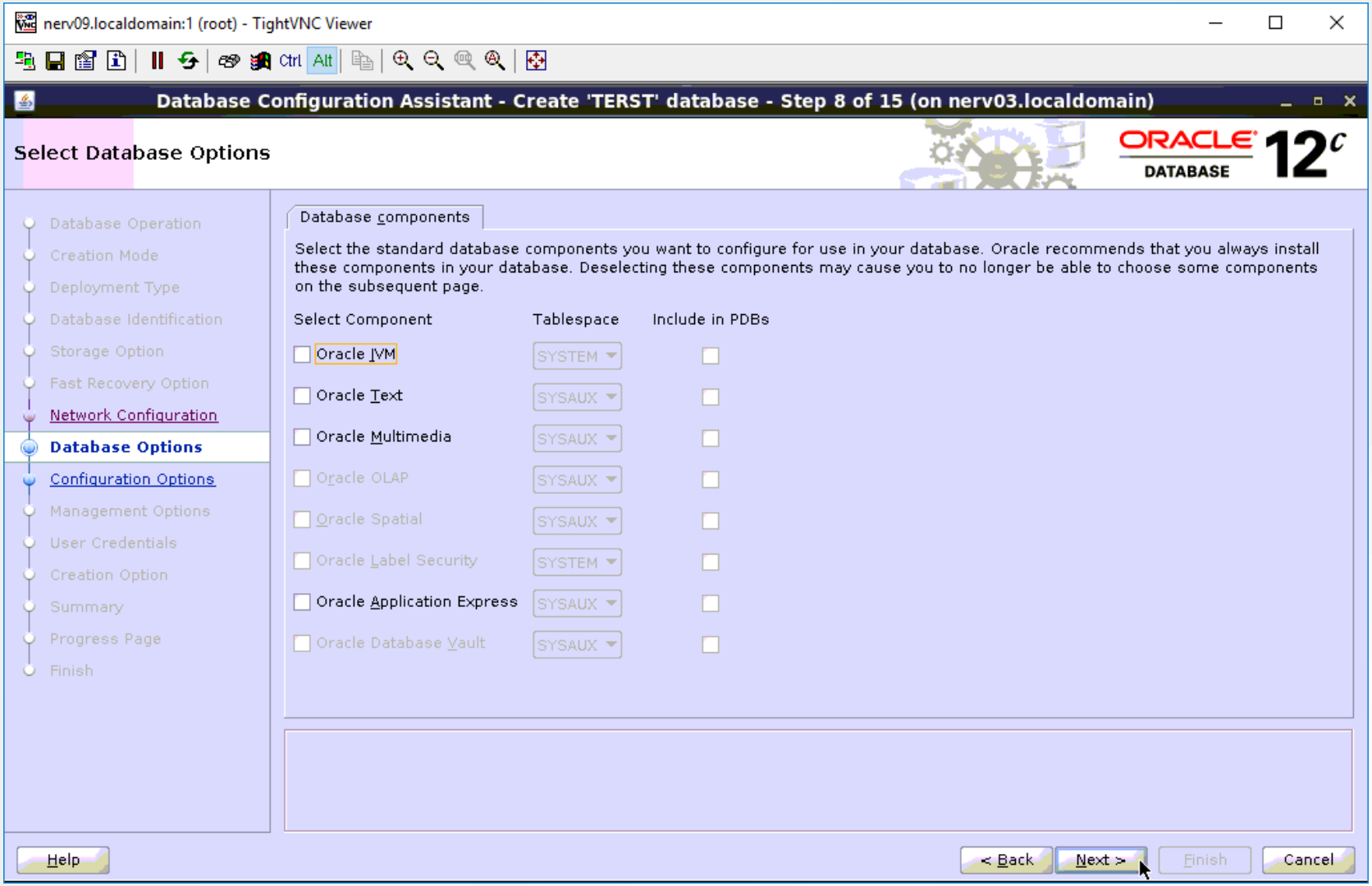
Como criar um banco com o Licenciamento correto?



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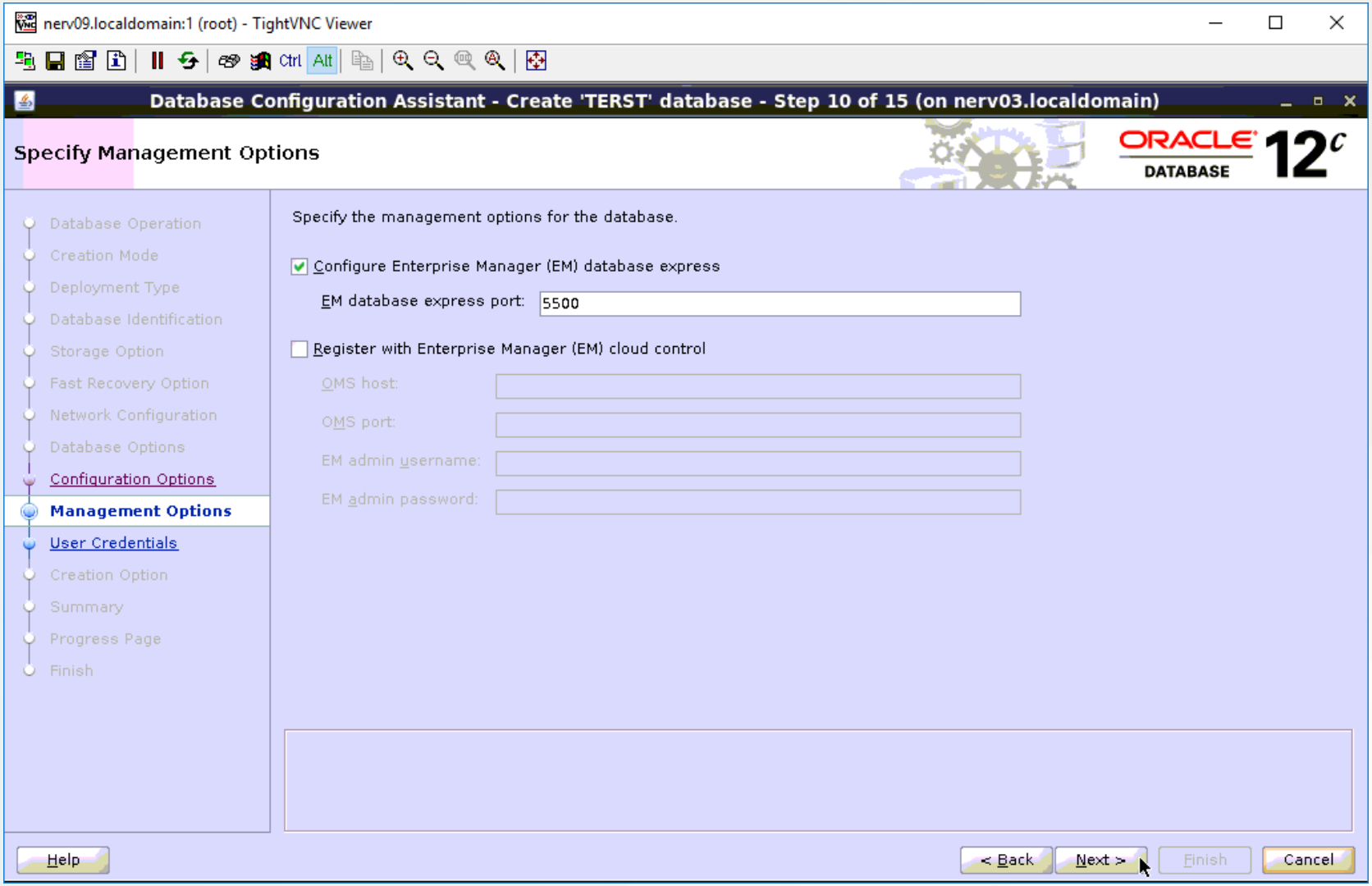
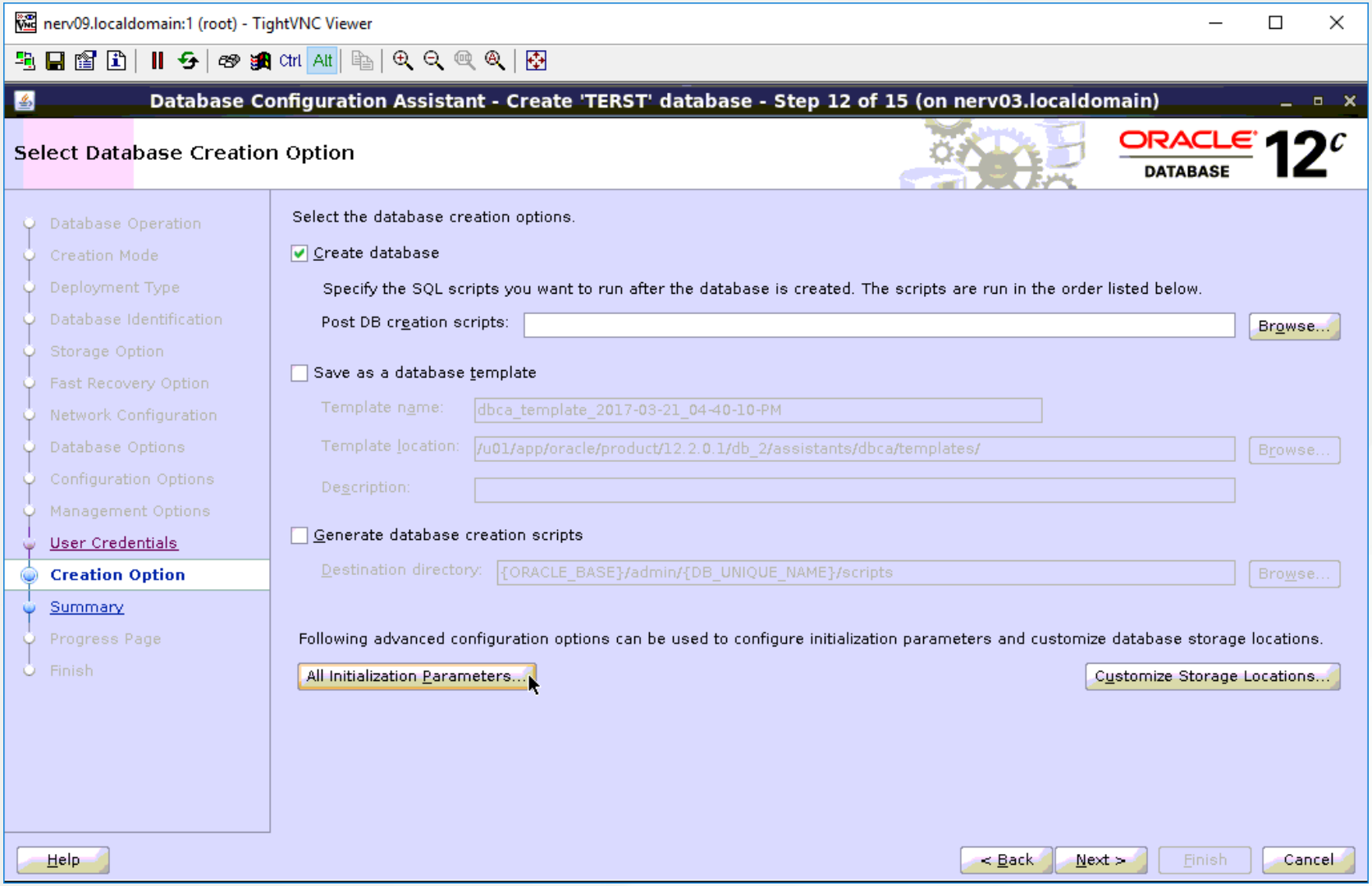
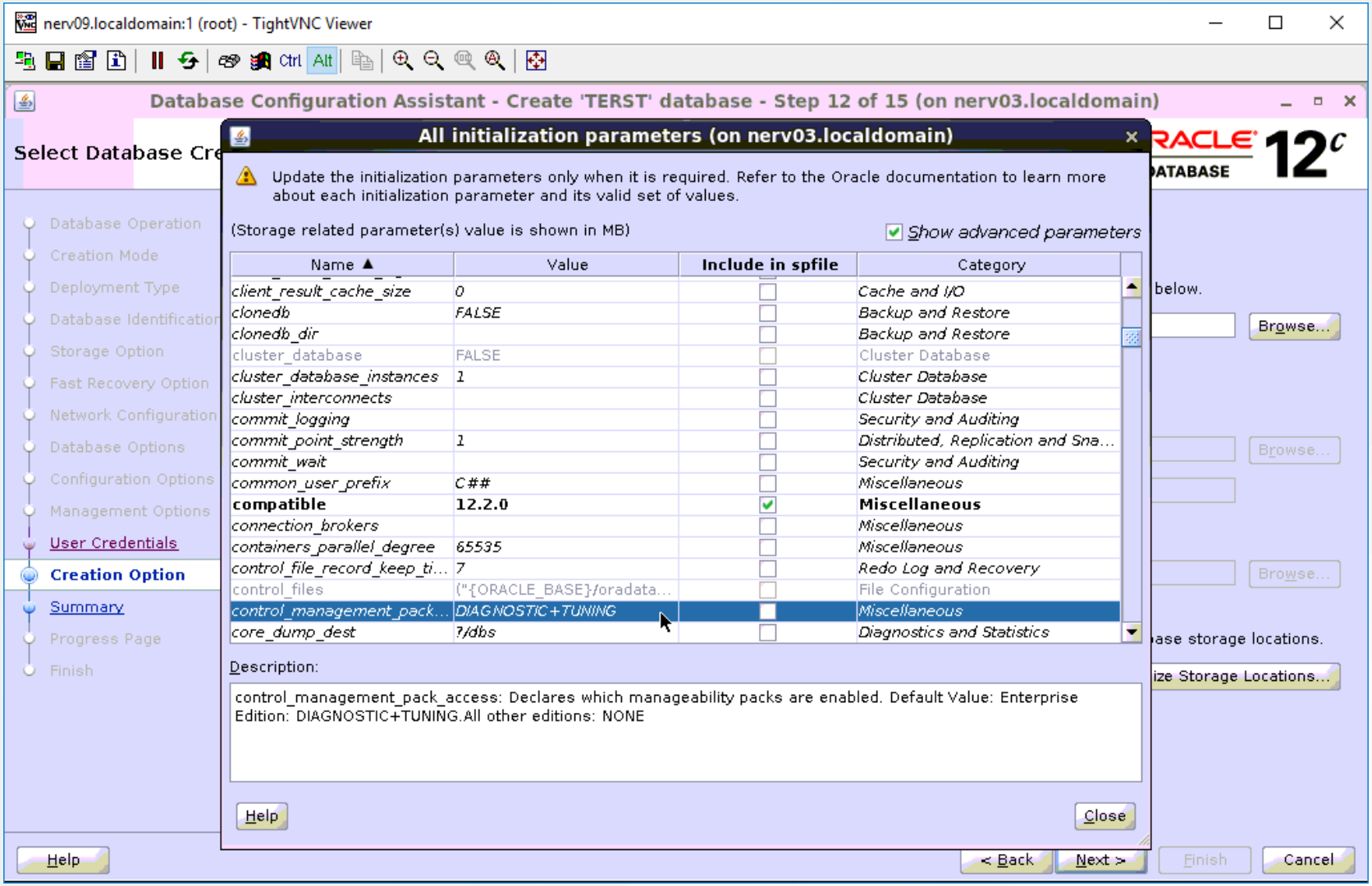
Como criar um banco com o Licenciamento correto?



Como criar um banco com o Licenciamento correto?



Como criar um banco com o Licenciamento correto?



Como criar um banco com o Licenciamento correto?

Os seguintes parâmetros devem ser alterados, e a opção “Include in spfile”:

```
AUDIT_TRAIL = NONE
CONTROL_MANAGEMENT_PACK_ACCESS = NONE (>= 11.1.0.6)
DEFERRED_SEGMENT_CREATION = FALSE (>= 11.2.0.2)
JOB_QUEUE_PROCESSES = 0
OPTIMIZER_USE_SQL_PLAN_BASELINES = FALSE (>= 11.1.0.6)
OPTIMIZER_ADAPTIVE_PLANS = FALSE (12.1.0.1 e 12.1.0.2)
OPTIMIZER_ADAPTIVE_STATISTICS = FALSE (>= 12.2.0.1)
PARALLEL_MAX_SERVERS = 0 (exceto RAC)
RESOURCE_LIMIT = FALSE
```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Como criar um banco com o Licenciamento correto?

Após o término da criação do banco pelo DBCA, os comandos abaixo devem ser executados imediatamente após a criação do banco de dados SE2:

```
SQL> SELECT CLIENT_NAME, STATUS FROM DBA_AUTOTASK_CLIENT;

SQL> EXEC DBMS_AUTO_TASK_ADMIN.DISABLE (CLIENT_NAME => 'auto optimizer
stats collection', OPERATION => NULL, WINDOW_NAME => NULL);
SQL> EXEC DBMS_AUTO_TASK_ADMIN.DISABLE (CLIENT_NAME => 'sql tuning
advisor', OPERATION => NULL, WINDOW_NAME => NULL);
SQL> EXEC DBMS_AUTO_TASK_ADMIN.DISABLE (CLIENT_NAME => 'auto space
advisor', OPERATION => NULL, WINDOW_NAME => NULL);
SQL> SELECT CLIENT_NAME, STATUS FROM DBA_AUTOTASK_CLIENT;

SQL> ALTER SYSTEM SET JOB_QUEUE_PROCESSES = 10 SCOPE=BOTH;
```


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Como corrigir (oficialmente) o uso de Features EE?

– Remover Índices BITMAP, trocando por índices BTREE.
– Remover DEGREE de objetos (alterar para DEGREE 1).
– Retirar compressão de objetos (ALTER TABLE ... NOCOMPRESS e ALTER TABLE ... MOVE).
– Remover compressão de configurações do RMAN (ou manter algoritmo BASIC).
– Remover compressão de procedimentos de backup.
– Remover SQL Profiles:

```
SQL> SELECT NAME, SQL_TEXT, CATEGORY, STATUS FROM DBA_SQL_PROFILES;
SQL> EXEC DBMS_SQLTUNE.DROP_SQL_PROFILE(NAME => 'SYS_SQLPROF_0163267c');
```

– Remover SQL Baselines (DBMS_SPM.DROP_SQL_PLAN_BASELINE)
– Remover Partições.
– Remover DEFERREED SEGMENTS:

```
SQL> SELECT '@CreateDeferredSegments.sql ' || USERNAME FROM DBA_USERS;
```

– Executar DUMP apenas do(s) OWNER(s) da aplicação, e não FULL.
– Instalar o Oracle da Edition correta (SE1 / SE / SE2).
– Nas SE e SE1 (<= 12.1.0.1), o instalador é o mesmo, e a opção para SE / SE1 aparece durante a instalação.
- Na SE2 (>= 12.1.0.2), o instalador é separado.
- Na SE2 (>= 12.2.0.1), o instalador é é o mesmo, e a opção para SE2 aparece durante a instalação.
– Remover opções após a instalação (via chopt).
– Criar um novo banco de dados, via Template "Custom Database" (ou New_Database.dbt no modo texto) do DBCA. Ainda no DBCA, alterar parâmetros que habilitam Features Enterprise.
– Imediatamente após a criação do banco, desabilitar as Tarefas Job de manutenção automática.
– Adequar o parâmetro JOB_QUEUE_PROCESSES de acordo com o ambiente.
– Importar o DUMP.

Como corrigir (não oficialmente) o uso de Features EE?

– Remover opções após a instalação (via chopt).
– Alterar parâmetros que habilitam Features Enterprise.
– Remover Índices BITMAP, trocando por índices BTREE.
– Remover DEGREE de objetos (alterar para DEGREE 1).
– Retirar compressão de objetos (ALTER TABLE ... NOCOMPRESS e ALTER TABLE ... MOVE).
– Remover compressão de configurações do RMAN (ou manter algoritmo BASIC).
– Remover compressão de procedimentos de backup.
– Remover SQL Profiles.
– Remover SQL Baselines.
– Remover Partições.
– Remover DEFERREED SEGMENTS:

```
SQL> SELECT '@CreateDeferredSegments.sql ' || USERNAME FROM DBA_USERS;
```

...

Como corrigir (não oficialmente) o uso de Features EE?

```
...
SQL> DELETE FROM DBA_FEATURE_USAGE_STATISTICS;
SQL> DELETE FROM WRI$_DBU_USAGE_SAMPLE;
SQL> DELETE FROM WRI$_DBU_FEATURE_USAGE;
SQL> DELETE FROM WRI$_DBU_HIGH_WATER_MARK;
SQL> DELETE FROM WRI$_DBU_CPU_USAGE;
SQL> DELETE WRI$_DBU_CPU_USAGE_SAMPLE;
SQL> COMMIT;
SQL> SHUTDOWN IMMEDIATE;
SQL> STARTUP
```

How To Cleanup Dba_feature_usage_statistics And Related Views after RMAN Duplicate Command (Doc ID 2309885.1)

Chamado 52

Implementar Melhores Práticas de Recuperação.

Requisitos:
Deve ser implementado o modo ARCHIVELOG, o modo FORCE LOGGING, o parâmetro ARCHIVE_LAG_TARGET, o FLASHBACK, o parâmetro FAST_START_MTTR_TARGET, o modo RETENTION GUARANTEE.

Procedimento:

```
SQL> SHUTDOWN IMMEDIATE;
SQL> STARTUP MOUNT;
SQL> ALTER DATABASE ARCHIVELOG;
SQL> ALTER DATABASE FORCE LOGGING;
SQL> ALTER SYSTEM SET DB_RECOVERY_FILE_DEST_SIZE = 100G;
SQL> ALTER SYSTEM SET DB_RECOVERY_FILE_DEST = '/u01/FRA/';
SQL> ALTER DATABASE FLASHBACK ON;
SQL> ALTER SYSTEM SET DB_FLASHBACK_RETENTION_TARGET = 1440;
SQL> ALTER SYSTEM SET ARCHIVE_LAG_TARGET = 600;
SQL> ALTER SYSTEM SET FAST_START_MTTR_TARGET = 1800;
SQL> ALTER DATABASE OPEN;
SQL> ALTER TABLESPACE UNDOTBS1 RETENTION GUARANTEE;
```

O que aconteceu?

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Chamado 53

Implementar Melhores Práticas do RMAN.

Requisitos:
Deve ser implementado a política de retenção para 8 BACKUPs com FORMAT adequado, com COMPRESSION, com OPTIMIZATION, com CONTROLFILE AUTOBACKUP com FORMAT adequado.

Procedimento:

```
$ mkdir /u01/Backup/
RMAN> CONFIGURE RETENTION POLICY TO REDUNDANCY 7;
RMAN> CONFIGURE BACKUP OPTIMIZATION ON;
RMAN> CONFIGURE CONTROLFILE AUTOBACKUP ON;
RMAN> CONFIGURE DEVICE TYPE DISK PARALLELISM 1 BACKUP TYPE TO COMPRESSED
BACKUPSET;
RMAN> CONFIGURE CHANNEL DEVICE TYPE DISK FORMAT '/u01/Backup/Database-
%d___DBID-%I___Date-%T___Set-%s___Piece-%p.BKP';
RMAN> CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE DISK TO
'/u01/Backup/ControlfileAutoBackup-%F.BKP';
RMAN> BACKUP DATABASE;
```


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Chamado 54

Implantar Melhores Práticas de Desempenho.

Requisitos:
A memória deve ser adequada ao hardware, e o STATSPACK deve ser configurado.

Procedimento:

```
SQL> ALTER SYSTEM SET SGA_MAX_SIZE=2G SCOPE=SPFILE;
SQL> ALTER SYSTEM SET SGA_TARGET=2G SCOPE=SPFILE;
SQL> ALTER SYSTEM SET PGA_AGGREGATE_TARGET=512m SCOPE=SPFILE;
SQL> SHUTDOWN IMMEDIATE;
SQL> STARTUP;

$ rlwrap sqlplus / AS SYSDBA
SQL> ALTER SESSION SET "_oracle_script" = TRUE;
SQL> @?/rdbms/admin/spcreate.sql
Enter value for perfstat_password: Nerv2019
Enter value for default_tablespace: SYSAUX
Enter value for temporary_tablespace: TEMP
$ rlwrap sqlplus PERFSTAT/Nerv2019
SQL> @?/rdbms/admin/spauto.sql
SQL> EXECUTE STATSPACK.MODIFY_STATSPACK_PARAMETER(I_SNAP_LEVEL => 7);
```


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Chamado 55

Implantar Rotinas de Manutenção.

Requisitos:

Devem ser adequadas, implantadas e testadas as seguintes Rotinas Administrativas:

- RADM Oracle Diario: Backup de banco de dados, coleta de estatísticas, remoção de logs antigos.
- RADM Oracle Estatísticas: Coleta de Estatísticas.
- RADM Oracle Archives: Backup de archives.
- RADM Oracle Semanal 1: Validação lógica do banco de dados, teste de restore.
- RADM Oracle Semanal 2: Coleta de System Statistics.

Procedimento:

```
$ crontab -e
00 20 * * * /home/oracle/RADM-Oracle-Diario.sh > /u01/app/oracle/RADM-Oracle-Diario.log 2>&1
00,15,30,45 * * * * /home/oracle/RADM-Oracle-Archives.sh > /u01/app/oracle/RADM-Oracle-Archives.log 2>&1
00 08 * * 0 /home/oracle/RADM-Oracle-Semanal-1.sh > /u01/app/oracle/RADM-Oracle-Semanal-1.log 2>&1
00 10 * * 3 /home/oracle/RADM-Oracle-Semanal-2.sh > /u01/app/oracle/RADM-Oracle-Semanal-2.log 2>&1
* * * * * /home/oracle/RADM-Oracle-Estatisticas.sh > /u01/app/oracle/RADM-Oracle-Estatisticas.log 2>&1
```

O que aconteceu?

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Os 7 Passos do Troubleshooting

Passo 0: Acredite: Há um erro. O cliente não ia querer falar com você se não houvesse.
Passo 1: Redução: Todos estão com erro?
Passo 2: Isolamento: Todos estão com o mesmo erro?
Passo 3: Reprodução: É possível simular o erro?
Passo 4: Informação: Olhe o Log, por favor.
Passo 5: Pesquisa. Sim, este não é o primeiro passo.
Passo 6: Correção e Validação: Teste antes de dizer que corrigiu.
Passo 7: Documentação: Esse erro vai acontecer novamente, e você não vai lembrar.

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Chamado 56

Deve ser criado um Standby.

Requisitos:
O Standby deve ser Manual.
O Standby deve ser criado no computador do segundo vizinho no sentido anti horário.

Procedimento:

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Chamado 56: Continuação

Na máquina nerv01, execute um backup:

```
RMAN> BACKUP DATABASE;
```

Copie para a máquina nerv02 os BACKUPPIECEs criados pelo backup executado na máquina nerv01, para qualquer diretório.

Copie o SPFILE da máquina nerv01 para a máquina nerv02, em $ORACLE_HOME/dbs.

Na máquina nerv02, crie todos os diretórios utilizados por parâmetros no SPFILE.

```
$ strings $ORACLE_HOME/dbs/spfileTERRST.ora
```

Chamado 56: Continuação

Na máquina nerv02, inicie a instância em NOMOUNT.

```
RMAN> STARTUP NOMOUNT;
```

Na máquina nerv02, restaure o CONTROLFILE.

```
RMAN> RESTORE CONTROLFILE FROM '/home/oracle/….bkp';
```

Na máquina nerv02, altere a instância para o estágio MOUNT.

```
RMAN> ALTER DATABASE MOUNT;
```

Na máquina nerv02, catalogue o BACKUPPIECE do BACKUP DATABASE.

```
RMAN> CATALOG START WITH '/home/oracle/Backup/';
```

Na máquina nerv02, restaure o banco de dados.

```
RMAN> RESTORE DATABASE;
```

Chamado 56: Continuação

Na máquina nerv01, verifique os ARCHIVED REDO LOGs gerados antes e depois do BACKUP DATABASE.

```
RMAN> ALTER SYSTEM SWITCH LOGFILE;
RMAN> ALTER SYSTEM SWITCH LOGFILE;
RMAN> ALTER SYSTEM SWITCH LOGFILE;
RMAN> LIST ARCHIVELOG ALL;
```

Na máquina nerv01, copie os ARCHIVED REDO LOGs para a máquina nerv02, para qualquer diretório.

Na máquina nerv02, catalogue os ARCHIVED REDO LOGs copiados.

```
RMAN> CATALOG ARCHIVELOG '/home/oracle/....arc';
```

Na máquina nerv02, execute RECOVER no banco de dados.

```
RMAN> RECOVER DATABASE;
```

Por que continua com erro?

Na máquina nerv02, abra a instância em READ ONLY.

```
RMAN> ALTER DATABASE OPEN READ ONLY;
```

Chamado 56: Continuação

Na máquina nerv01, gere mais ARCHIVED REDO LOGs

```
RMAN> ALTER SYSTEM SWITCH LOGFILE;
RMAN> ALTER SYSTEM SWITCH LOGFILE;
RMAN> ALTER SYSTEM SWITCH LOGFILE;
```

Na máquina nerv01, copie os ARCHIVED REDO LOGs para a máquina nerv02, para o mesmo diretório que está na máquina nerv01.

Na máquina nerv02, execute RECOVER no banco de dados.

```
RMAN> SHUTDOWN IMMEDIATE;
RMAN> STARTUP MOUNT;
RMAN> RECOVER DATABASE;
```

Por que continua com erro?

Na máquina nerv02, abra a instância em READ ONLY.

```
RMAN> ALTER DATABASE OPEN READ ONLY;
```

Perguntas?

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