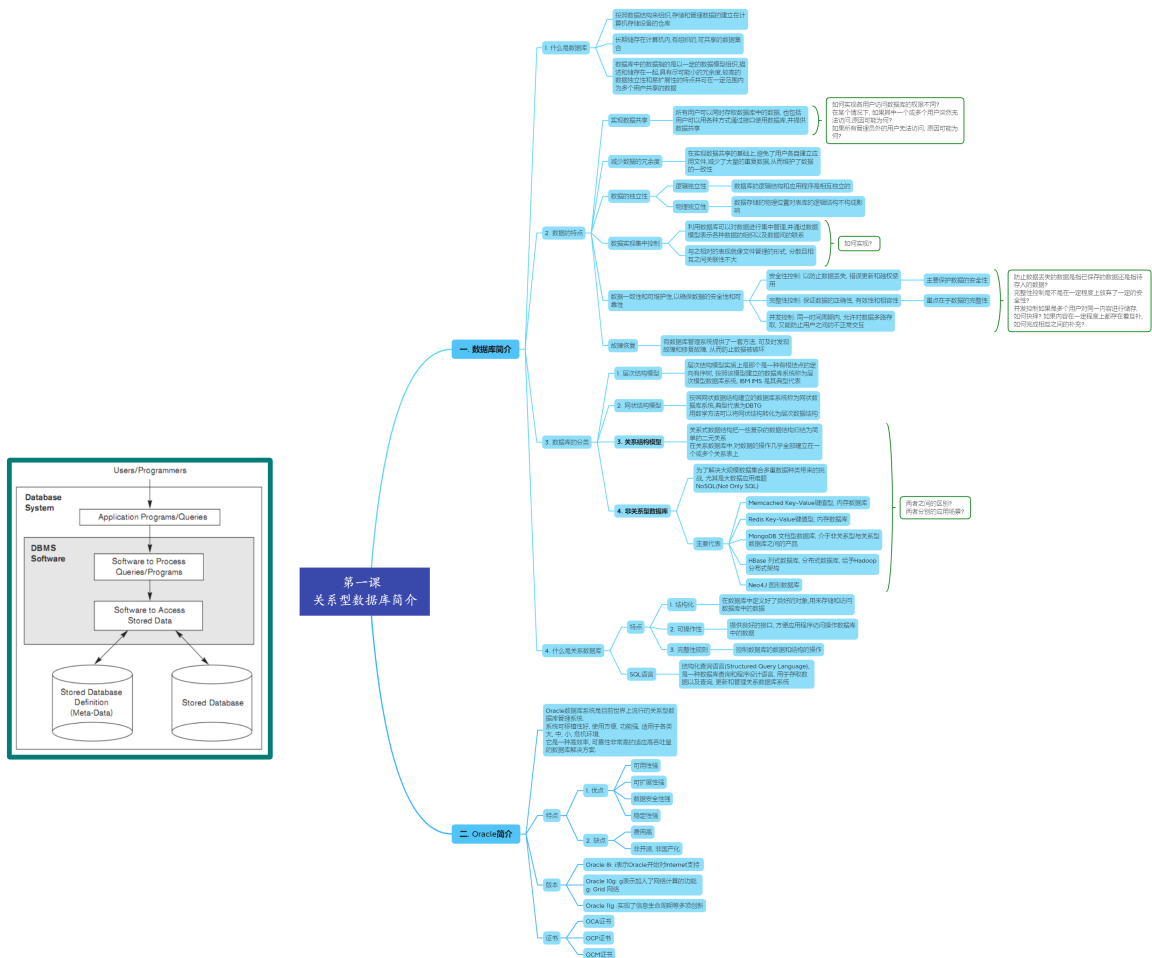


第一周 总结

一. 关系型数据库简介



1. 数据库简介

1. 什么是数据库

- 按照数据结构来组织、存储和管理数据的建立在计算机存储设备的仓库
- 长期储存在计算机内,有组织的,可共享的数据集合
- 数据库中的数据指的是以一定的数据模型组织、描述和储存在一起,具有尽可能小的冗余度,较高的数据独立性和易扩展性的特点并可在一定范围内为多个用户共享的数据

2. 数据的特点

- 实现数据共享

如何实现各用户访问数据库的权限不同?

在某个情况下,如果其中一个或多个用户突然无法访问,原因可能为何?

如果所有管理员外的用户无法访问,原因可能为何?

- 减少数据的冗余度
- 数据的独立性
- 数据实现集中控制

如何实现数据的集中控制?

- 数据一致性和可维护性,以确保数据的安全性和可靠性

- 安全性控制: 以防止数据丢失, 错误更新和越权使用
- 完整性控制: 保证数据的正确性, 有效性和相容性
- 并发控制: 同一时间周期内, 允许对数据多路存取, 又能防止用户之间的不正常交互

ACID

防止数据丢失的数据是指已保存的数据还是指待存入的数据?

完整性控制是不是在一定程度上放弃了一定的安全性?

并发控制如果是多个用户对同一内容进行储存, 如何抉择? 如果内容在一定程度上都存在着互补, 如何完成相互之间的补充?

- 故障恢复

3. 数据库的分类

- 层次结构模型
- 网状结构模型
- 关系结构模型
- 非关系型数据库

4. 关系数据库

- 根据关系结构模型建立的数据库系统
- 特点: 结构化, 可操作性和完整性规则
- SQL语言: 结构化查询语言(Structured Query Language), 是一种数据库查询和程序设计语言, 用于存取数据以及查询, 更新和管理关系数据库系统

2. Oracle简介

1. 简介

- Oracle数据库系统是目前世界上流行的关系型数据库管理系统.
- Oracle数据库系统可移植性好, 使用方便, 功能强, 适用于各类大, 中, 小, 危机环境.
- Oracle数据库系统是一种高效率, 可靠性非常高的适应高吞吐量的数据库解决方案.

2. 特点

- 优点: 可用性强, 可扩展性强, 数据安全性强和稳定性强
- 缺点: 费用高, 非开源化非国产化

3. 版本

- Oracle 8i: i表示Oracle开始对Internet支持
- Oracle 10g: g表示加入了网络计算的功能.
g: Grid 网络
- Oracle 11g :实现了信息生命周期等多项创新

4. 证书

二. 创建虚拟机与安装Oracle数据库系统及其部分配置

一. 创建虚拟机

1. virtualbox中创建redhat Linux虚拟机(选择最小安装)

手动分区 RED HAT ENTERPRISE LINUX 7.9 安装

[完成\(D\)](#) cn [帮助!](#)

▼ 新 Red Hat Enterprise Linux 7.9 安装

数据

/home 30 GiB
vg_root-lv_home

系统

/boot 976 MiB >
sda1

/ 10 GiB
vg_root-lv_root

/tmp 10 GiB
vg_root-lv_tmp

swap 8192 MiB
vg_root-lv_swap

期望容量(D):
976 MiB [修改...\(M\)](#)

设备类型(T):
标准分区 ☐ 加密(E)

文件系统(Y):
ext4 ☒ 重新格式化(O)

标签(L): 名称(N): sda1

**虚拟硬盘100G
这里配置60G
为后面的Oracle文件系统留用40G**

[更新设置\(U\)](#)

可用空间 **992.5 KiB** 总空间 **100 GiB**

[已选择 1 个存储设备\(S\)](#) [全部重设\(R\)](#)

网络和主机名(_N) RED HAT ENTERPRISE LINUX 7.9 安装

[完成\(D\)](#) cn [帮助!](#)

以太网 (enp0s3)
Intel Corporation 82540EM Gigabit Ethernet Controller (P...)

以太网 (enp0s8)
Intel Corporation 82540EM Gigabit Ethernet Controller (P...)

以太网 (enp0s8)
已连接 [打开](#)

硬件地址 08:00:27:C6:2C:22

速度 1000 Mb/s

IP 地址 192.168.56.106

子网掩码 255.255.255.0

默认路由 0.0.0.0

DNS

[配置\(O\)...](#)

主机名(H): node2 [应用\(A\)](#) 当前主机名: localhost

2. 最小安装安装成功只有字符面板

3. 配置yum源

```
# 编辑yum源文件
vi /etc/yum.repos.d/redhat.repo
```

```
# 在新建的文件中输入一下内容
```

```
[163]
name=163
baseurl=http://mirrors.163.com/centos/7/os/x86_64
gpgcheck=0
enabled=1
```

本地源

```
# 查看是否生效,看到有163输出及成功
yum repolist all
```

```
# 安装vim
yum install vim
```

4. 配置远程连接

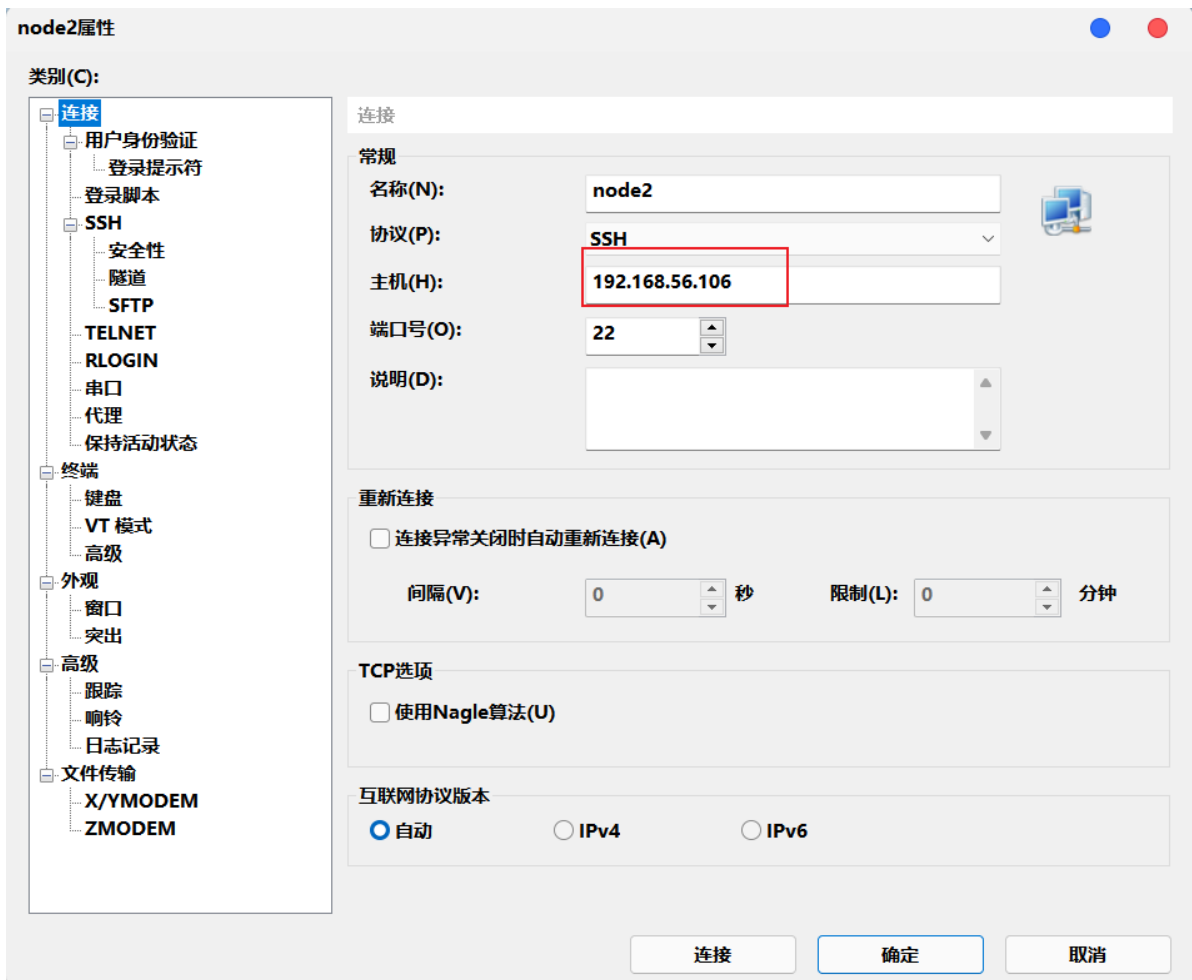
```
# 我们在设置虚拟机的时候给了两个网卡,enp0s3与enp0s8
# enp0s3 用于设置网络连接
# enp0s8 用于远程连接
# 设置enp0s8允许连接
vim /etc/sysconfig/network-scripts/ifcfg-enp0s8

# 将该文件中最后一行的ONBOOT修改为yes
ONBOOT=yes
# esc+:+wq 保存退出

# 重启网络服务
service network restart

# 查看enp0s8的ip
ip addr

# 打开xshell软件
# 添加新的远程连接
# 将enp0s8的ip输入到主机的框中,连接成功如图
```



```
Xshell 7 (Build 0090)
Copyright (c) 2020 NetSarang Computer, Inc. All rights reserved.

Type 'help' to learn how to use Xshell prompt.
[D:\~]$

Connecting to 192.168.56.106:22...
Connection established.
To escape to local shell, press 'Ctrl+Alt+J'.

WARNING! The remote SSH server rejected X11 forwarding request.
Last login: Wed Nov 17 16:26:59 2021 from 192.168.56.1
[root@node2 ~]#
```

二. 安装Oracle前的准备

1. 查看安装Oracle的硬件要求

查看内存和交换分区的大小

```
free -m
```

查看硬件架构

```
uname -a
```

查看/tmp文件系统大小(至少1G)

```
df -h /tmp
```

2. 查看安装Oracle的软件要求

查看一下软件包是否安装(版本可高不可低)

```
rpm -qa |grep -i binutils-2.20
rpm -qa |grep -i compat-libcap1-1
rpm -qa |grep -i compat-libstdc++-33
rpm -qa |grep -i gcc-4.
rpm -qa |grep -i gcc-c++-4.
rpm -qa |grep -i glibc-2.
rpm -qa |grep -i glibc-devel-2.
rpm -qa |grep -i ksh
rpm -qa |grep -i libgcc-4.
rpm -qa |grep -i libstdc++-4.
rpm -qa |grep -i libstdc++-devel-4.
rpm -qa |grep -i libaio-0.
rpm -qa |grep -i libaio-devel-0.
rpm -qa |grep -i make-3
rpm -qa |grep -i sysstat-9
```

安装

```
yum install binutils -y
yum install compat-libcap1 -y
yum install compat-libstdc++-33 -y
yum install gcc gcc-c++ -y
yum install ksh -y
yum install libaio-devel -y
yum install sysstat -y
```

3. 额外软件需求

```
yum install unixODBC* -y
```

4. 创建所需的操作系统组 and 用户

- The Oracle Inventory group (typically, oinstall)
- The OSDBA group (typically, dba)
- The Oracle software owner (typically, oracle)
- The OSOPER group (optional. Typically, oper)

创建用户组

```
groupadd -g 301 oinstall
groupadd -g 302 dba
```

创建用户oracle

```
useradd -g oinstall -G dba -u 301 oracle
```

```
# 设置oracle密码
echo "oracle:oracle" | chpasswd

# 查看某个命令的功能
man 命令名
```

5. 配置内核参数和资源限制

```
# 内核参数
cat >> /etc/sysctl.conf <<!
#add for oracle
fs.aio-max-nr = 1048576
fs.file-max = 6815744
kernel.sem = 250 32000 100 128
net.core.rmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_default = 262144
net.core.wmem_max = 1048576
!

# # 使之生效
/sbin/sysctl -p

# 资源限制
cat >> /etc/security/limits.conf <<!
# add for oracle
oracle soft nfile 1024
oracle hard nfile 65536
oracle soft nproc 2047
oracle hard nproc 16384
oracle soft stack 10240
!

# # 查看是否成功
tail -n 15 /etc/security/limits.conf
```

6. 创建所需的文件系统

```
# /oracle
i_appfs=oracle
i_appfs_size=20G
i_vgname=vg_root
i_fs_type=ext4
lvcreate -L $i_appfs_size -n lv_${i_appfs} $i_vgname
mkfs.${i_fs_type} /dev/mapper/${i_vgname}-lv_${i_appfs}
mkdir /${i_appfs}
cat >> /etc/fstab <<!
/dev/mapper/${i_vgname}-lv_${i_appfs} /${i_appfs} ${i_fs_type} acl,user_xattr 0
0
!
echo "----"
tail -2 /etc/fstab
mount -a

#/oradata
```

```

i_appfs=oradata
i_appfs_size=15G
i_vgname=vg_root
i_fs_type=ext4
lvcreate -L $i_appfs_size -n lv_${i_appfs} $i_vgname
mkfs.${i_fs_type} /dev/mapper/${i_vgname}-lv_${i_appfs}
mkdir /${i_appfs}
cat >> /etc/fstab <<!
/dev/mapper/${i_vgname}-lv_${i_appfs} /${i_appfs} ${i_fs_type} acl,user_xattr 0
0
!
echo "----"
tail -2 /etc/fstab
mount -a

# 更改权限
chown -R oracle:oinstall /oracle
chown -R oracle:oinstall /oradata
chmod -R 775 /oracle
chmod -R 775 /oradata

```

7. 配置oracle用户的环境变量

```

# 转到oracle用户下
su - oracle

# 打开用户配置变量文件.bash_profile
vim ~/.bash_profile

# 添加环境变量
export ORACLE_BASE=/oracle
export ORACLE_HOME=$ORACLE_BASE/product/11.2.0/db_2
export ORACLE_SID=zzdb2
export ORACLE_HOSTNAME=node2
export ORACLE_UNQNAME=zzdb2
export PATH=$ORACLE_HOME/bin:$ORACLE_HOME/jdk/bin:$PATH
#export NLS_LANG=SIMPLIFIED\ CHINESE_CHINA.ZHS16GBK

# 确认主机名与配置的$ORACLE_HOSTNAME相同
echo $ORACLE_HOSTNAME
cat /etc/hostname

# 返回root用户,在hosts文件中加入虚拟机的ip

```

```

[root@node2 ~]# cat /etc/hostname
node2
[root@node2 ~]# █

```

```

[root@node2 ~]# cat /etc/hosts
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.56.106 localhost node2 localhost4 localhost4.localdomain4
[root@node2 ~]# █

```


三. 安装Oracle

1. 将下载好的安装文件传到虚拟机中并解压

```
# 利用xsh11中的sftp命令连接虚拟机传文件
sftp 192.168.56.106
# oracle:oracle

cd /oracle/soft
put

unzip linux.x64_11gR2_database_1of2.zip
unzip linux.x64_11gR2_database_2of2.zip
```

2. 最小化安装无法使用图形界面,安装相关软件

```
yum -y groupinstall "X Window System"

yum -y groupinstall "GNOME Desktop"

# 生效
init 5 或者 startx

# 设置语言为英文
export LANG=en

# 测试图形界面是否可用(前提是打开xmanager-Passive)
# # 输出一个时钟窗口则成功
export DISPLAY=本机IP:0
xclock

# 查看本机IP
# # 有线网络
# # 控制中心->网络->以太网的IP
# # 无线网络
# # 右下角wifi图标->详情->IPv4地址

# 执行xclock报错command not found
yum install xorg-x11-apps
```

3. 安装Oracle

```
cd /oracle/soft/database
./runInstaller
```

Configure Security Updates



ORACLE[®] 11g
DATABASE

Configure Security Updates

- [Installation Option](#)
- Grid Options
- Install Type
- Typical Installation
- Prerequisite Checks
- Summary
- Install Product
- Finish

Provide your email address to be informed of security issues, install the product and initiate configuration manager. [View details.](#)

Email:

Easier for you if you use your My Oracle Support email address/username.

☒ I wish to receive security updates via My Oracle Support.

My Oracle Support Password:

Help

< Back

Next >

Finish

Cancel

Select Installation Option



ORACLE[®] 11g
DATABASE

Configure Security Updates

- [Configure Security Updates](#)
- Installation Option**
- [Grid Options](#)
- Install Type
- Typical Installation
- Prerequisite Checks
- Summary
- Install Product
- Finish

Select any of the following install options.

- ☐ Create and configure a database
- ☒ Install database software only
- ☐ Upgrade an existing database

Help

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Finish

Cancel

Node Selection

Configure Security Updates

Installation Option

Grid Options

Install Type

Typical Installation

Prerequisite Checks

Summary

Install Product

Finish

Select the type of database installation you want to perform.

☒ Single instance database installation

☐ Real Application Clusters database installation

Help

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Next >

Finish

Cancel

Select Product Languages

Configure Security Updates

Installation Option

Grid Options

Product Languages

Database Edition

Installation Location

Operating System Groups

Prerequisite Checks

Summary

Install Product

Finish

Select the languages in which your product will run.

Available Languages:

Finnish

French

German

Greek

Hebrew

Hungarian

Icelandic

Indonesian

Italian

Japanese

Korean

Latin American Spanish

Latvian

Lithuanian

Malay

Mexican Spanish

Norwegian

Polish

Portuguese

Romanian

Russian

Slovak

Slovenian

Spanish

Swedish

Thai

Traditional Chinese

Turkish

Ukrainian

Vietnamese

Selected Languages:

English

Simplified Chinese

Help

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Finish

Cancel

Select Database Edition



- Configure Security Updates
- Installation Option
- Grid Options
- Product Languages
- Database Edition**
- Installation Location
- Operating System Groups
- Prerequisite Checks
- Summary
- Install Product
- Finish

Which database edition do you want to install?

☒ Enterprise Edition (4.29GB)

Oracle Database 11g Enterprise Edition is a self-managing database that has the scalability, performance, high availability, and security features required to run the most demanding, mission-critical applications.

☐ Standard Edition (4.22GB)

Oracle Database 11g Standard Edition is ideal for work groups, departments, and small to medium-sized businesses looking for lower-cost solutions.

☐ Standard Edition One (4.22GB)

Oracle Database 11g Standard Edition One is ideal for work groups, departments, and small to medium-sized businesses looking for lower-cost solutions.

Select Options...

Help

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Next >

Finish

Cancel

Specify Installation Location



- Configure Security Updates
- Installation Option
- Grid Options
- Product Languages
- Database Edition
- Installation Location**
- Operating System Groups
- Prerequisite Checks
- Summary
- Install Product
- Finish

Specify an Oracle base path to place all Oracle software and configuration-related files. This location is the Oracle base directory.

Oracle Base: /oracle

Browse...

Specify a location for storing Oracle software files. This location is the Oracle home directory.

Software Location: /oracle/product/11.2.0/db_2

Browse...

Help

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Next >

Finish

Cancel

Create Inventory

Configure Security Updates

Installation Option

Grid Options

Product Languages

Database Edition

Installation Location

Create Inventory

Prerequisite Checks

Summary

Install Product

Finish

You are starting your first installation on this host. Specify a directory for installation files. This directory is called the "inventory directory". The installer automatically sets up subdirectories for each product to contain inventory data. The subdirectory for each product typically requires 150 kilobytes of disk space.

Inventory Directory:

Specify an operating system group whose members have write permission to the inventory directory (orainventory).

orainventory Group Name:

Help

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Next >

Finish

Cancel

Privileged Operating System Groups

Configure Security Updates

Installation Option

Grid Options

Product Languages

Database Edition

Installation Location

Create Inventory

Operating System Groups

Prerequisite Checks

Summary

Install Product

Finish

SYSDBA and SYSOPER privileges are required to create a database using operating system (OS) authentication. Membership in OSDBA grants the SYSDBA privilege, and membership in OSOPER grants the SYSOPER privilege, which is a subset of SYSDBA privileges. Select the name of the OSDBA group to grant the SYSDBA privilege. You must be a member of this group.

Database Administrator (OSDBA) Group:

Database Operator (OSOPER) Group:

Help

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Next >

Finish

Cancel

Perform Prerequisite Checks

- Configure Security Updates
- Installation Option
- Grid Options
- Product Languages
- Database Edition
- Installation Location
- Create Inventory
- Operating System Groups
- Prerequisite Checks**
- Summary
- Install Product
- Finish

Some of the minimum requirements for installation are not completed. Review and fix the issues listed in the following table, and recheck the system.

[Check Again](#) [Fix & Check Again](#) [Show Failed](#)

☒ [Ignore All](#)

Checks	Status	Fixable
Checks		
OS Kernel Parameters		
OS Kernel Parameter: semmni	Ignored	Yes
OS Kernel Parameter: shmmax	Ignored	Yes
OS Kernel Parameter: shmall	Ignored	Yes
OS Kernel Parameter: ip_local_port_range	Ignored	Yes
Packages		
Package: libaio-0.3.105	Ignored	
Package: glibc-2.3.4-2.41	Ignored	
Package: compat-libstdc++-33-3.2.3	Ignored	
Package: elfutils-libelf-devel-0.97	Ignored	
Package: libaio-devel-0.3.105	Ignored	
Package: libgcc-3.4.6	Ignored	
Package: libstdc++-3.4.6	Ignored	
Package: unixODBC-2.2.11	Ignored	
Package: unixODBC-devel-2.2.11	Ignored	
Package: pdksh-5.2.14	Ignored	

我们的版本都比默认版本要高

This is a prerequisite condition to test whether the OS kernel parameter "semmni" is properly set. [\(more details\)](#)

Expected Value : 128

Actual Value : 0

[Help](#)

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Next >

Finish

Cancel

Summary

- Configure Security Updates
- Installation Option
- Grid Options
- Product Languages
- Database Edition
- Installation Location
- Create Inventory
- Operating System Groups
- Prerequisite Checks
- Summary**
- Install Product
- Finish

Oracle Database 11g Release 2 Installer

Global settings

- Disk space: required 4.29 GB available 14.0 GB
- Source location: /oracle/soft/database/install/.../stage/products.xml
- Install method: Typical installation
- Database edition: Enterprise Edition (Install database software only)
- Oracle base: /oracle
- Software location: /oracle/product/11.2.0/db_2
- OSDBA group: dba

Inventory information

- Inventory location: /oracle/orainventory
- orainventory group: oinstall

[Save Response File...](#)

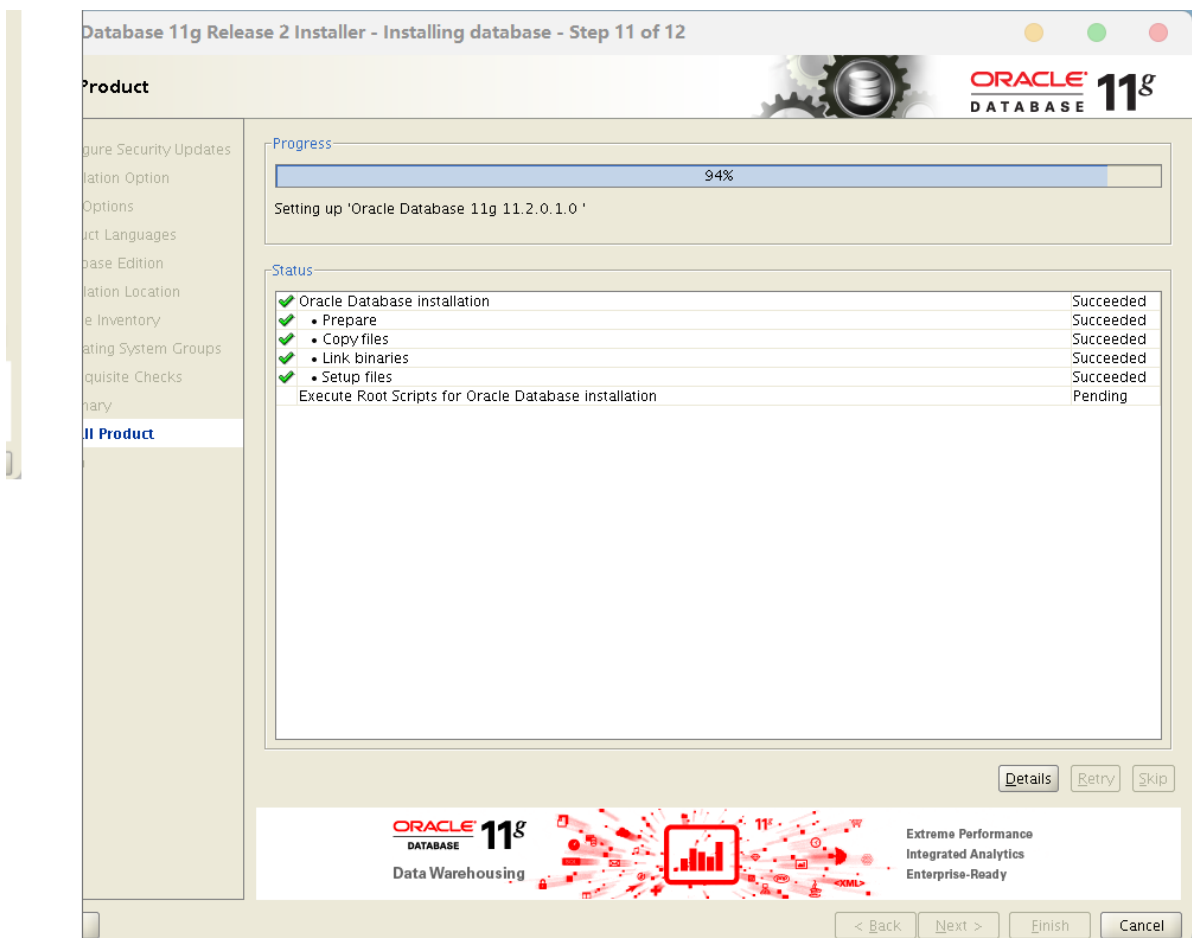
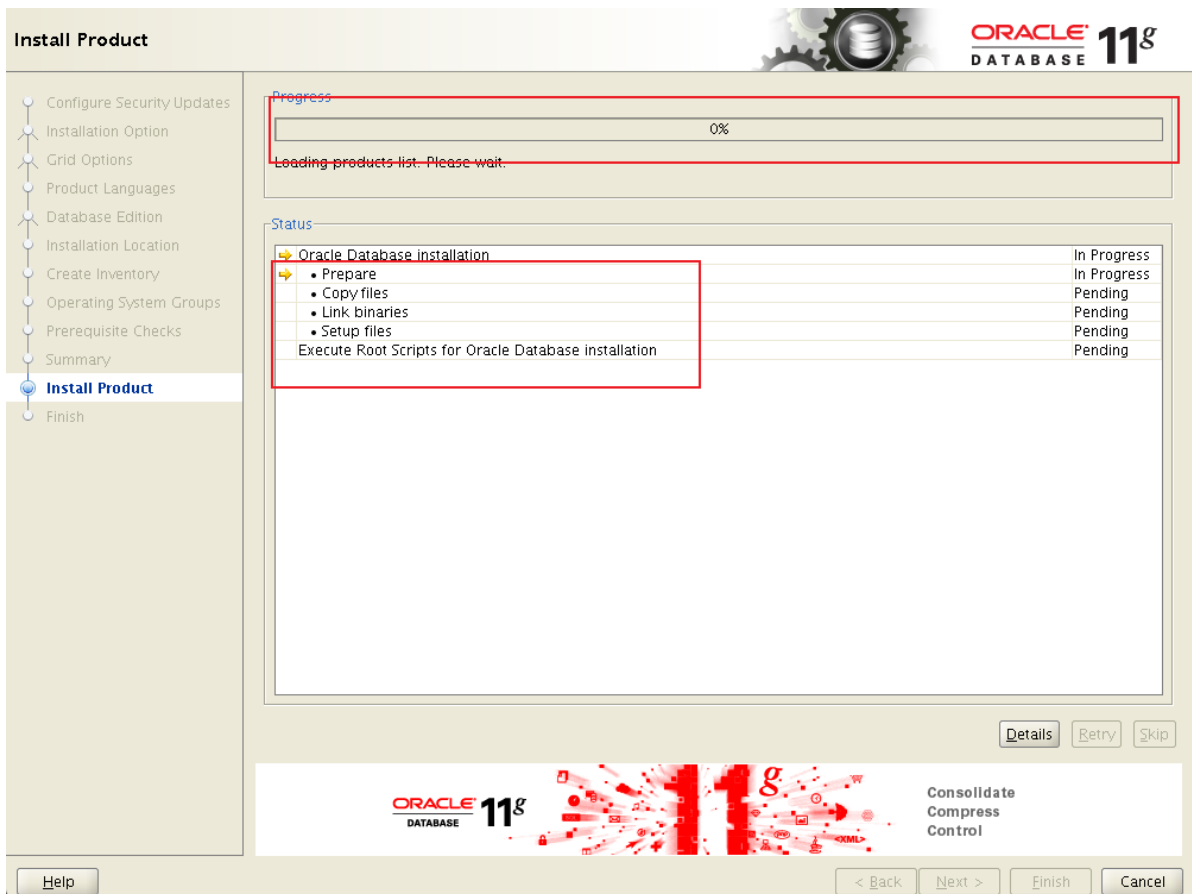
[Help](#)

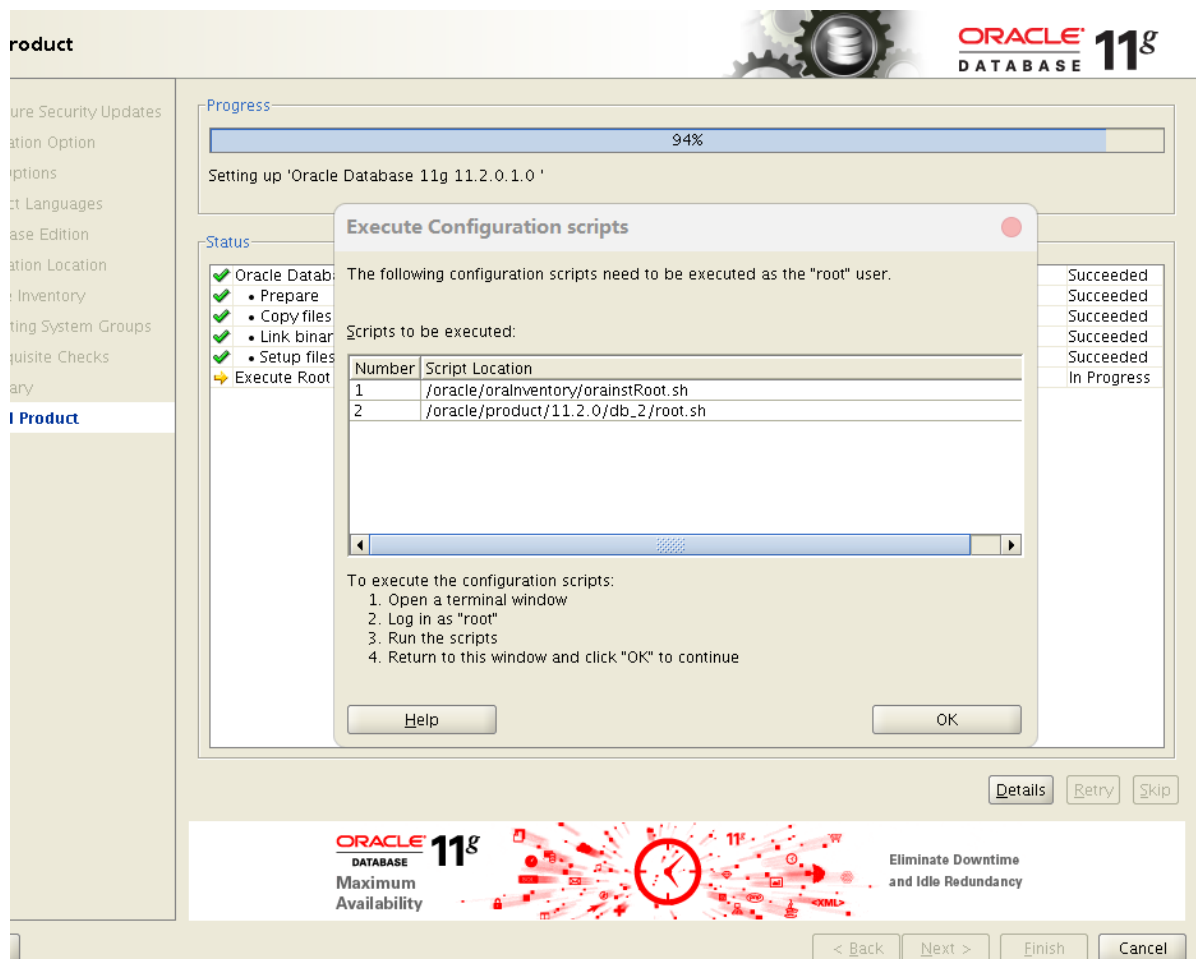
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Next >

Finish

Cancel





这两条命令需要新开一个窗口执行

```
[root@node2 ~]# /oracle/oraInventory/orainstRoot.sh
Changing permissions of /oracle/oraInventory.
Adding read,write permissions for group.
Removing read,write,execute permissions for world.

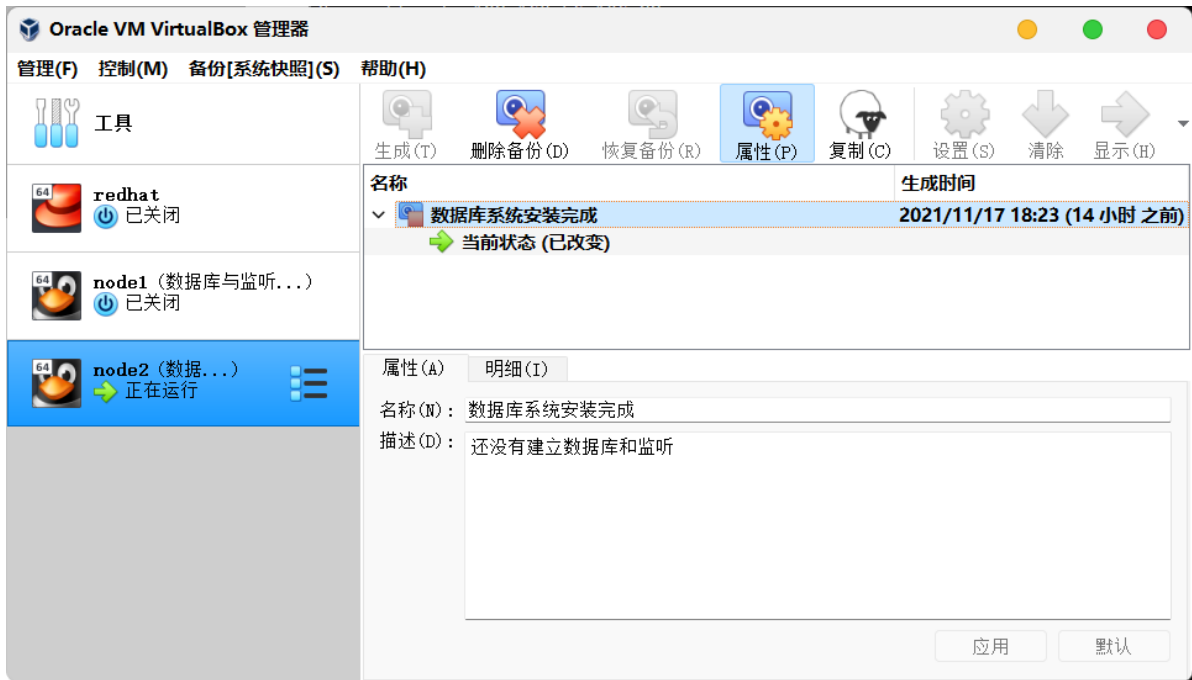
Changing groupname of /oracle/oraInventory to oinstall.
The execution of the script is complete.
[root@node2 ~]# /oracle/product/11.2.0/db_2/root.sh
Running Oracle 11g root.sh script...

The following environment variables are set as:
    ORACLE_OWNER= oracle
    ORACLE_HOME=  /oracle/product/11.2.0/db_2

Enter the full pathname of the local bin directory: [/usr/local/bin]: 回车就行
    Copying dbhome to /usr/local/bin ...
    Copying oraenv to /usr/local/bin ...
    Copying coraenv to /usr/local/bin ...

Creating /etc/oratab file...
Entries will be added to the /etc/oratab file as needed by
Database Configuration Assistant when a database is created
Finished running generic part of root.sh script.
Now product-specific root actions will be performed.
Finished product-specific root actions.
[root@node2 ~]#
```

4. 建立快照,备份,重启



四. 建立监听

1. 准备

```
# 登陆oracle用户
su - oracle

# 打开xmanager-passive

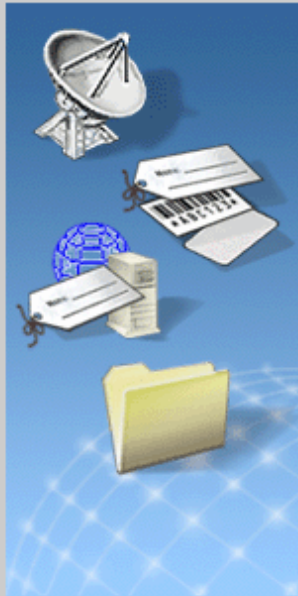
# 测试图形化是否可用
export DISPLAY=本地IP:0
xclock

# 设置英文
export LANG=en
```

2. 使用netca建立监听

```
# netca 向导方式
# netmgr 监听管理器
netca
```

Oracle Net Configuration Assistant: Welcome



Welcome to the Oracle Net Configuration Assistant.
This tool will take you through the common configuration steps, listed below.

Choose the configuration you would like to do:

- ☒ Listener configuration **1**
- ☐ Naming Methods configuration
- ☐ Local Net Service Name configuration
- ☐ Directory Usage Configuration

Cancel

Help

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Next >

2

Oracle Net Configuration Assistant: Listener Configur...



For remote connections to be made to your Oracle database, you must configure a Oracle Net listener. The Oracle Net Configuration Assistant allows you to add, reconfigure, rename or delete a listener.

Select what you want to do:


- ☒ Add
- ☐ Reconfigure
- ☐ Delete
- ☐ Rename

Cancel

Help

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For remote connections to be made to your Oracle database you must have at least one Oracle Net listener. Enter the name of the listener you want to create:

Listener name:

Cancel Help < Back Next >



Which TCP/IP port number should the listener use? The port number selected should not be used by any other software on this computer.

☒ Use the standard port number of 1521

☐ Use another port number:

Cancel Help < Back Next >

如果这一步端口占用错误报错, 两个原因:

1. 1521端口确实被占用, 自行排除
2. 主机名与ORACLE_HOSTNAME设置不一致

```
cat /etc/hostname  
echo $ORACLE_HOSTNAME
```

如果两者不一致, 修改~/.bash_profile里面的ORACLE_HOSTNAME或者修改/etc/hostname里面的主机名

Oracle Net Configuration Assistant: Listener Configur...



Would you like to configure another listener?

☒ No

☐ Yes

Cancel

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Oracle Net Configuration Assistant: Listener Configur...



Listener configuration complete!

Cancel

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```
[oracle@node2 ~]$ netca
```

Oracle Net Services Configuration:

Configuring Listener:LISTENER

Listener configuration complete.

Oracle Net Listener Startup:

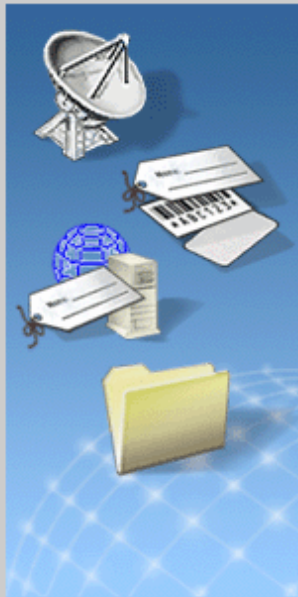
Running Listener Control:

```
/oracle/product/11.2.0/db_2/bin/lsnrctl start LISTENER
```

Listener Control complete.

Listener started successfully.

Oracle Net Configuration Assistant: Welcome



Welcome to the Oracle Net Configuration Assistant.
This tool will take you through the common configuration steps, listed below.

Choose the configuration you would like to do:

- ☒ Listener configuration
- ☐ Naming Methods configuration
- ☐ Local Net Service Name configuration
- ☐ Directory Usage Configuration

Cancel

Help

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Finish

3. 查看监听是否成功

```
lsnrctl status
```

```
[oracle@node2 ~]$ lsnrctl status
```

LSNRCTL for Linux: Version 11.2.0.1.0 - Production on 18-NOV-2021 09:41:42

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

Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP) (HOST=node2) (PORT=1521)))
STATUS of the LISTENER

```
-----
Alias                LISTENER
Version              TNSLSNR for Linux: Version 11.2.0.1.0 - Production
Start Date           18-NOV-2021 09:36:48
Uptime                0 days 0 hr. 4 min. 54 sec
Trace Level           off
Security              ON: Local OS Authentication
SNMP                 OFF
Listener Parameter File /oracle/product/11.2.0/db_2/network/admin/listener.ora
Listener Log File     /oracle/diag/tnslsnr/node2/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=localhost) (PORT=1521)))
The listener supports no services
The command completed successfully
```

```
# 创建成功产生一个listener.ora文件
cat $ORACLE_HOME/network/admin/listener.ora
```

```
[oracle@node2 ~]$ cat $ORACLE_HOME/network/admin/listener.ora
# listener.ora Network Configuration File: /oracle/product/11.2.0/db_2/network/admin/listener.ora
# Generated by Oracle configuration tools.
```

```
LISTENER =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = node2)(PORT = 1521))
    )
  )
```

动态监听

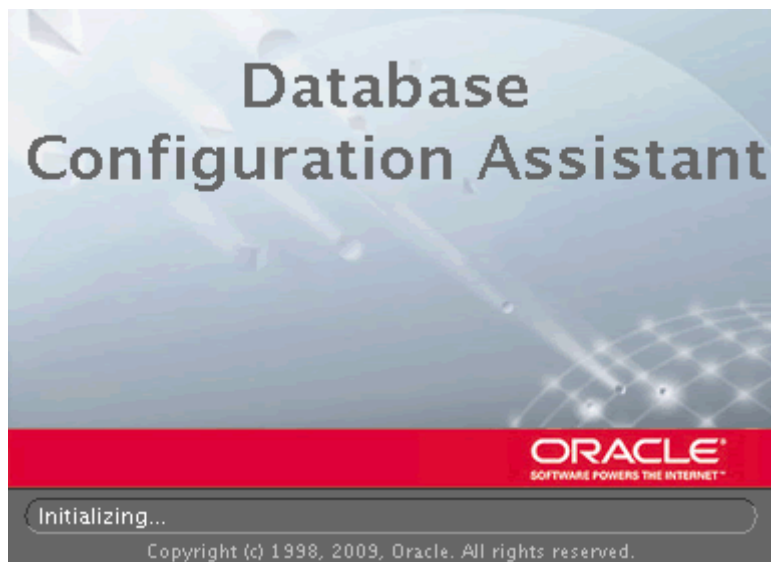
```
ADR_BASE_LISTENER = /oracle
```

```
[oracle@node2 ~]$
```

五. 建立数据库

1. 创建数据库

dbca





Welcome to Database Configuration Assistant for Oracle database.

The Database Configuration Assistant enables you to create a database, configure database options in an existing database, delete a database, and manage database templates.

Cancel

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Database Configuration Assistant, Step 1 of 12 : Operations



Select the operation that you want to perform:

- ☒ Create a Database
- ☐ Configure Database Options
- ☐ Delete a Database
- ☐ Manage Templates



ASM configuration operations must be performed using Automatic Storage Management Configuration Assistant (ASMCA) from Oracle Grid Infrastructure home.

Cancel


Help

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Database Configuration Assistant, Step 2 of 12 : Database Templates

Templates that include datafiles contain pre-created databases. They allow you to create a new database in minutes, as opposed to an hour or more. Use templates without datafiles only when necessary, such as when you need to change attributes like block size, which cannot be altered after database creation.



Select	Template	Includes Datafiles
<input type="radio"/>	General Purpose or Transaction Processing	Yes
<input type="radio"/>	Custom Database	No
<input type="radio"/>	Data Warehouse	Yes

Show Details...

Cancel Help Back Next


Database Configuration Assistant, Step 3 of 12 : Database Identification

An Oracle database is uniquely identified by a Global Database Name, typically of the form "name.domain".

Global Database Name:

A database is referenced by at least one Oracle instance which is uniquely identified from any other instance on this computer by an Oracle System Identifier (SID).

SID:



Cancel Help Back Next

另外开一个会话窗口, 登陆到oracle用户, 查看ORACLE_SID

```
su - oracle
echo $ORACLE_SID
```


Database Configuration Assistant, Step 4 of 12 : Management Options



Enterprise Manager

Automatic Maintenance Tasks

☒ Configure Enterprise Manager

☐ Register with Grid Control for centralized management

Management Service

No Agents Found

☒ Configure Database Control for local management

☐ Enable Alert Notifications

Outgoing Mail (SMTP) Server:

Recipient Email Address:

☐ Enable Daily Disk Backup to Recovery Area

Backup Start Time:

02

00

AM

PM

OS Username:

OS Password:

Cancel

Help

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For security reasons, you must specify passwords for the following user accounts in the new database.

☐ Use Different Administrative Passwords

User Name	Password	Confirm Password
SYS		
SYSTEM		
DBSNMP		
SYSMAN		

☒ Use the Same Administrative Password for All Accounts

Password:

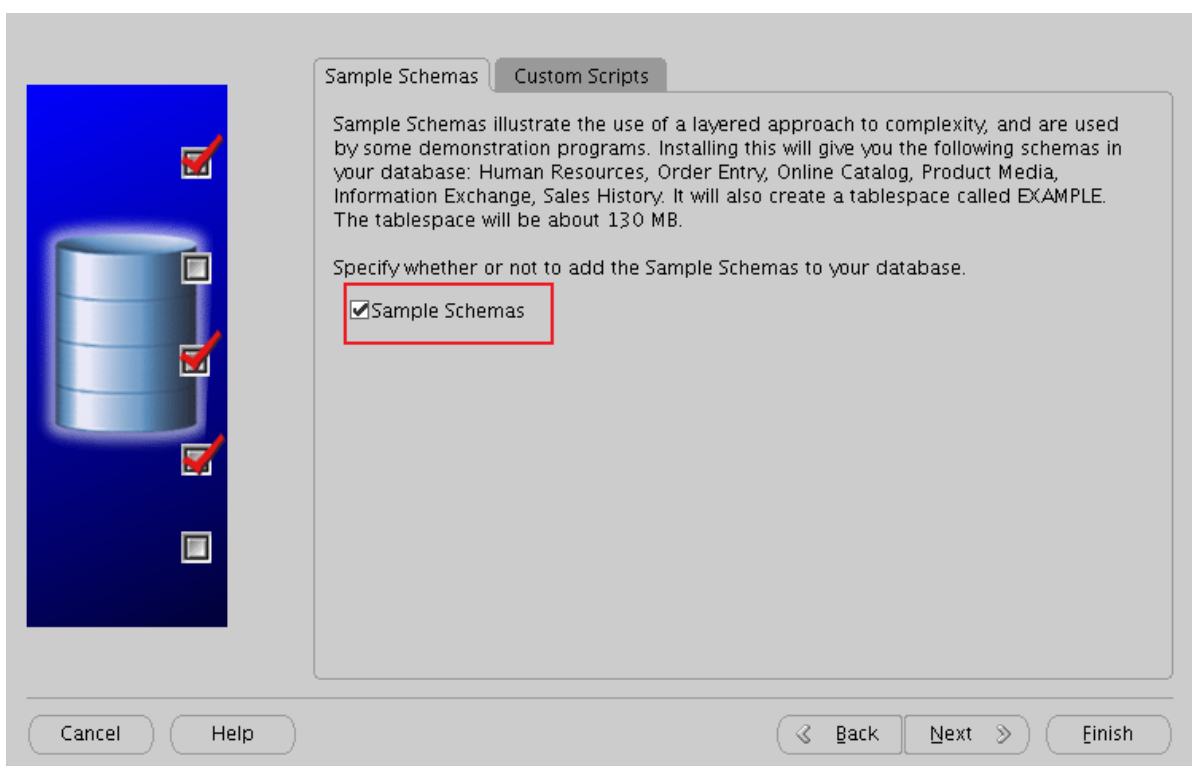
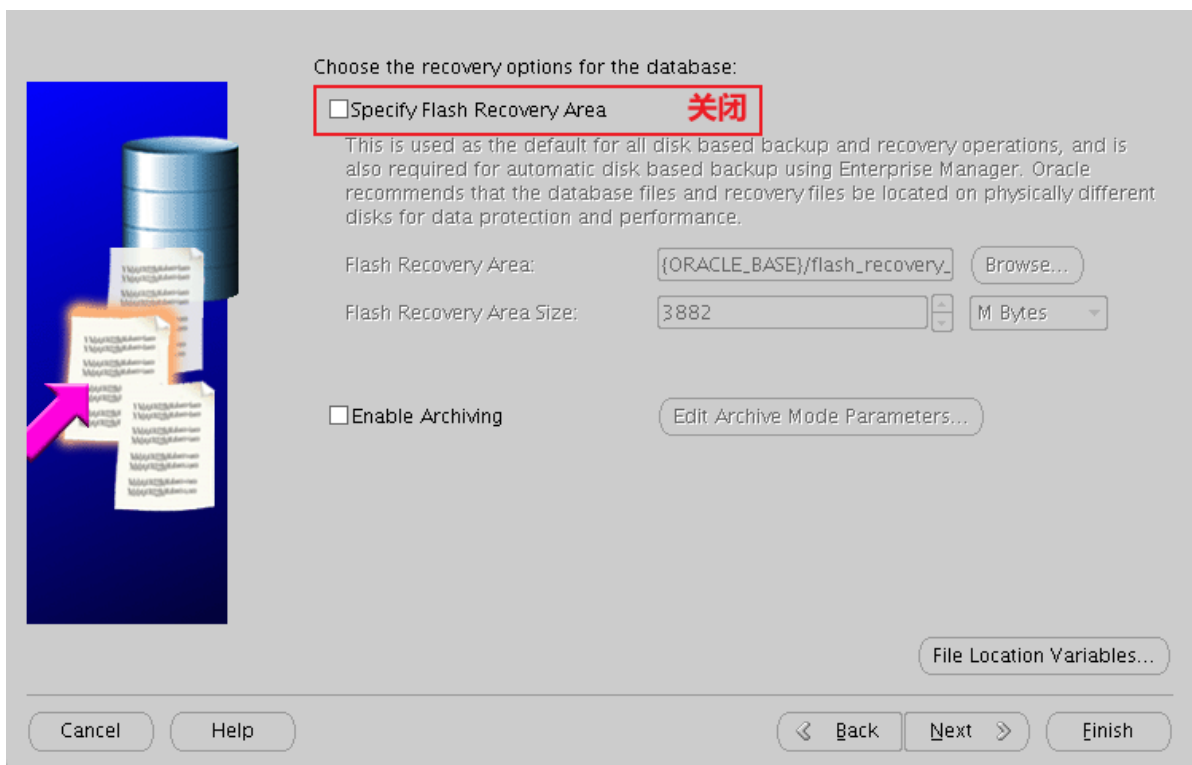
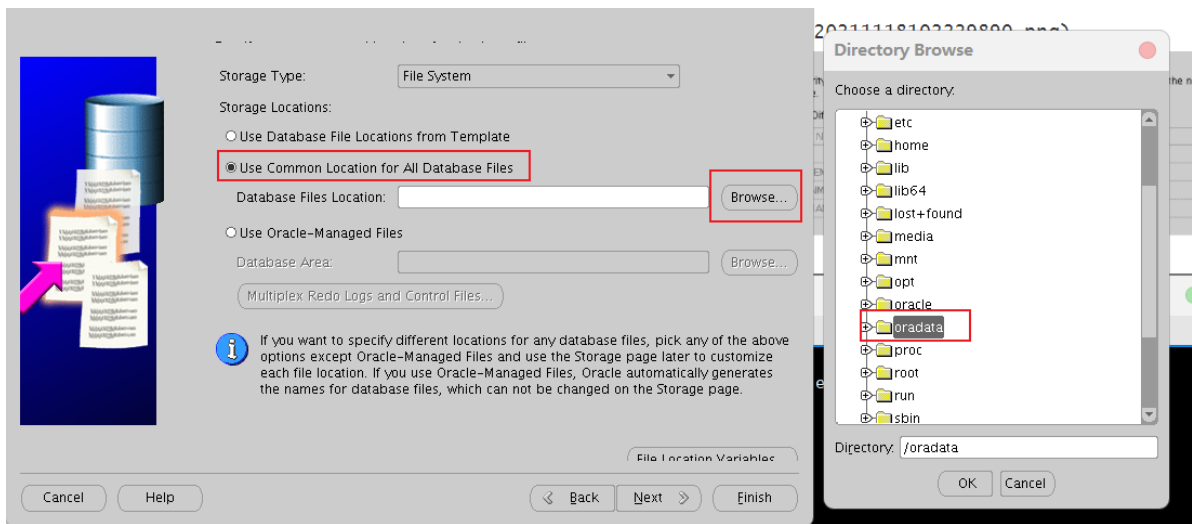
Confirm Password:


Cancel

Help

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The left sidebar contains four icons with checkboxes: a memory chip, a folder with documents, a database cylinder, and a folder with a question mark. All checkboxes are checked with red checkmarks.

Memory | **Sizing** | Character Sets | Connection Mode

☒ **Typical**

Memory Size (SGA and PGA): MB

Percentage: 40 % 250 MB 3788 MB

☒ Use Automatic Memory Management [Show Memory Distribution...](#)

☐ **Custom**

Memory Management:


SGA Size: M Bytes

PGA Size: M Bytes

Total Memory for Oracle: 15.15 M Bytes

[All Initialization Parameters...](#)

Cancel Help < Back Next > Finish



The left sidebar contains four icons with checkboxes: a memory chip, a folder with documents, a database cylinder, and a folder with a question mark. All checkboxes are checked with red checkmarks.

Memory | **Sizing** | Character Sets | Connection Mode

A block is the smallest unit of storage for allocation and for I/O. It cannot be changed once the database is created.

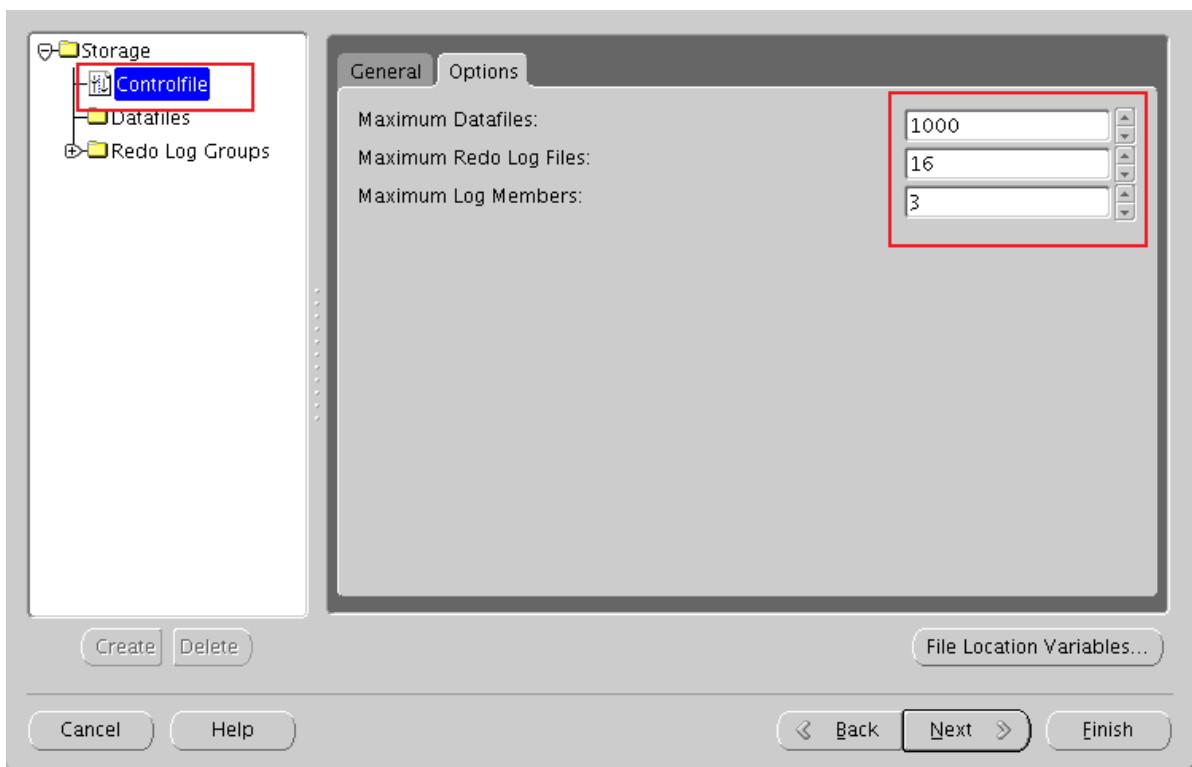
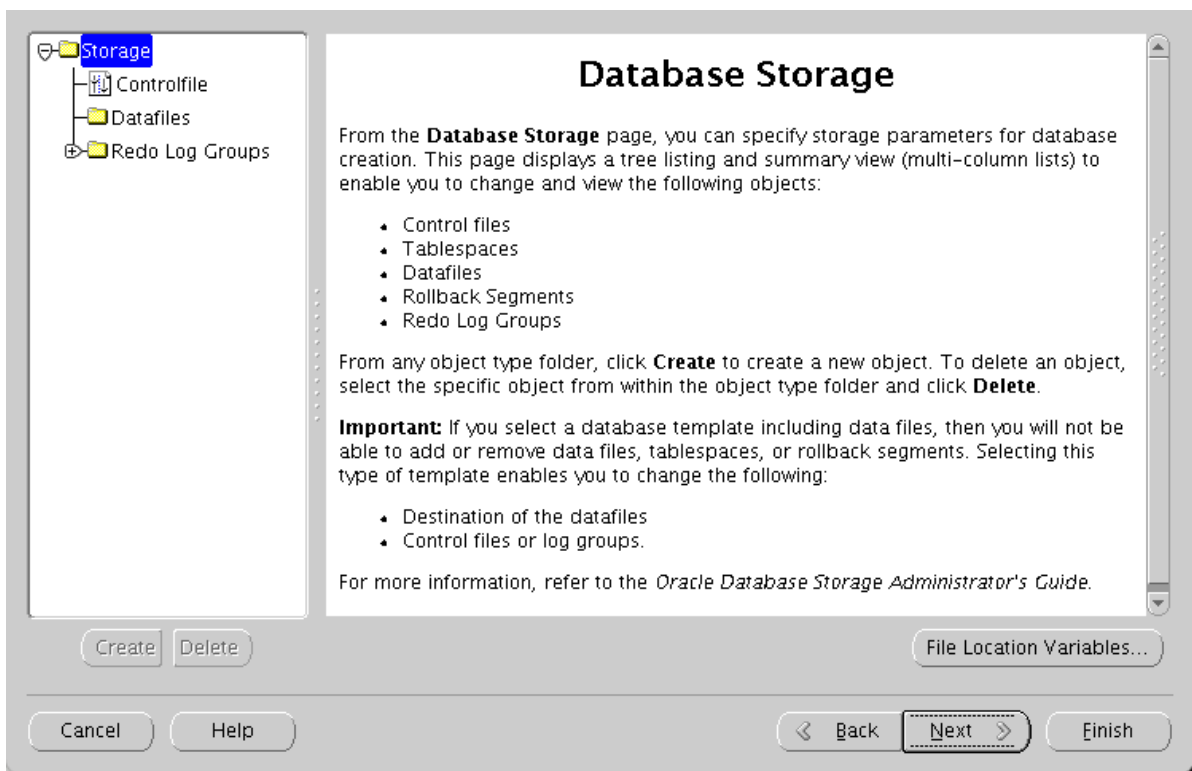
Block Size: Bytes

Specify the maximum number of operating system user processes that can be simultaneously connected to this database. The value of this parameter includes the user processes and the Oracle background processes.

Processes:

[All Initialization Parameters...](#)

Cancel Help < Back Next > Finish



Database Configuration Assistant, Step 10 of 11 : Database Storage

Storage

- Controlfile
- Datafiles
- Redo Log Groups
 - 1
 - 2
 - 3

General

Group #: 1

File Size: 16 M Bytes **全部设置16MB**

Redo Log Members:

File Name	File Directory
redo01.log	/oradata/(DB_UNIQUE_NAME)/


CreateDelete

File Location Variables...

CancelHelp

BackNextFinish

Database Configuration Assistant, Step 11 of 11 : Creation Options



Select the database creation options:

☒ Create Database

☒ Save as a Database Template

Name: zzdb2

Description:

☒ Generate Database Creation Scripts

Destination Directory: /oracle/admin/zzdb2/scripts Browse...

CancelHelp

BackNextFinish

The following operations will be performed:

A database called "zzdb2" will be created.

A template called "zzdb2" will be generated.

Database creation scripts will be stored in "/oracle/admin/zzdb2/scripts".

Database Details:

Create Database – Summary

Database Configuration Summary

Global Database Name: zzdb2

Database Configuration Type: Single Instance

SID: zzdb2

Management Option Type: Database Control

Storage Type: File System

Memory Configuration Type: Automatic Memory Management

这些就是这个数据库的配置

Database Configuration Details

Database Components

Component	Selected
Oracle JVM	true
Oracle Text	true
Oracle XML DB	true

Save as an HTML file...

OK

Cancel

Help

Database Configuration Assistant



The template "zzdb2" creation completed.

OK

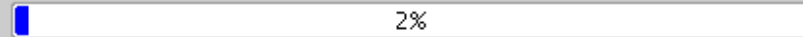
**Ideal Platform for
Grid Computing**

- Low cost servers
and storage
- Highest availability
- Best scalability

✓ **Copying database files**

Creating and starting Oracle instance
Completing Database Creation

Clone database creation in progress



Log files for the current operation are located at:
/oracle/cfgtoollogs/dbca/zzdb2

Stop

Database creation complete. For details check the logfiles at:
/oracle/cfgtoollogs/dbca/zzdb2.

Database Information:

Global Database Name: zzdb2
System Identifier(SID): zzdb2
Server Parameter File name: /oracle/product/11.2.0/db_2/dbs/spfilezzdb2.ora

The Database Control URL is <http://node2:1158/em>

Note: All database accounts except SYS, SYSTEM, DBSNMP, and SYSMAN are locked. Select the Password Management button to view a complete list of locked accounts or to manage the database accounts (except DBSNMP and SYSMAN). From the Password Management window, unlock only the accounts you will use. Oracle Corporation strongly recommends changing the default passwords immediately after unlocking the account.

Password Management...

Exit

Lock / unlock database user accounts and / or change the default passwords:

User Name	Lock Account?	New Password	Confirm Password
SYS			
SYSTEM			
OUTLN	✓		
FLows_FILES	✓		
MDSYS	✓		
ORDSYS	✓		
EXFSYS	✓		
WMSYS	✓		
APPQOSSYS	✓		
APEX_030200	✓		
OWBSYS_AUDIT	✓		
ORDDATA	✓		
CTXSYS	✓		
ANONYMOUS	✓		
XDB	✓		
ORDPLUGINS	✓		
OWBSYS	✓		

OK

Cancel

Help

Lock / unlock database user accounts and / or change the default passwords:

User Name	Lock Account?	New Password	Confirm Password
CTXSYS	✓		
ANONYMOUS	✓		
XDB	✓		
ORDPLUGINS	✓		
OWBSYS	✓		
SI_INFORMTN_SCHEMA	✓		
OLAPSYS	✓		
SCOTT		*****	*****
ORACLE_OCM	✓	tiger	
BI	✓		
PM	✓		
MDDATA	✓		
IX	✓		
SH	✓		
DIP	✓		
OE	✓		
APEX_PUBLIC_USER	✓		

OK

Cancel

Help

ok后退出即可


```

Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP) (HOST=node2) (PORT=1521)))
STATUS of the LISTENER
-----
Alias                     LISTENER
Version                   TNSLSNR for Linux: Version 11.2.0.1.0 - Production
Start Date                18-NOV-2021 09:36:48
Uptime                   0 days 0 hr. 44 min. 51 sec
Trace Level               off
Security                 ON: Local OS Authentication
SNMP                     OFF
Listener Parameter File   /oracle/product/11.2.0/db_2/network/admin/listener.ora
Listener Log File         /oracle/diag/tnslnr/node2/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp) (HOST=localhost) (PORT=1521)))
Services Summary...
Service "zzdb2" has 1 instance(s).
  Instance "zzdb2", status READY, has 1 handler(s) for this service...
Service "zzdb2XDB" has 1 instance(s).
  Instance "zzdb2", status READY, has 1 handler(s) for this service...
The command completed successfully
[oracle@node2 ~]$

```

lsnrctl status 查看动态监听

数据库连接成功

状态

2. 连接数据库

```
sqlplus / as sysdba
```

```

[oracle@node2 ~]$ sqlplus / as sysdba

SQL*Plus: Release 11.2.0.1.0 Production on Thu Nov 18 10:30:32 2021

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

Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options

SQL>

```

```
select username,account_status from dba_users order by 1;
```

USERNAME	ACCOUNT_STATUS
IX	EXPIRED & LOCKED
MDDATA	EXPIRED & LOCKED
MDSYS	EXPIRED & LOCKED
MGMT_VIEW	OPEN
OE	EXPIRED & LOCKED
OLAPSYS	EXPIRED & LOCKED
ORACLE_OCM	EXPIRED & LOCKED
ORDDATA	EXPIRED & LOCKED
ORDPLUGINS	EXPIRED & LOCKED
ORDSYS	EXPIRED & LOCKED
OUTLN	EXPIRED & LOCKED
USERNAME	ACCOUNT_STATUS
OWBSYS	EXPIRED & LOCKED
OWBSYS_AUDIT	EXPIRED & LOCKED
PM	EXPIRED & LOCKED
SCOTT	OPEN
SH	EXPIRED & LOCKED
SI_INFORMTN_SCHEMA	EXPIRED & LOCKED
SPATIAL_CSW_ADMIN_USR	EXPIRED & LOCKED
SPATIAL_WFS_ADMIN_USR	EXPIRED & LOCKED
SYS	OPEN

六. 附加

1. 关于Oracle数据库sql不能删除退格上下使用的解决

资源: rlwrap-0.37.tar(建议在本地解压后压缩成zip格式再传到虚拟机)

方法: <https://blog.csdn.net/a1824071/article/details/121222099>

配置别名时最好在oracle用户下配置

2. 从头启动数据库

```
# 服务器开机后进入root用户
# 切换到oracle用户
su - oracle
```

```
# 打开监听
lsnrctl start
```

```
# 启动数据库
sqlplus / as sysdba
```

```
# 启动数据库
SQL> startup
```

三. 初识Oracle

- su - oracle
全新的打开一个独有的oracle用户
不会继承上一个用户的任何变量
会访问.bash_profile文件,所以用户的环境变量会生效

2. 如何登录Oracle-ORA环境变量的作用

- ORACLE_SID
起到辨识数据库的作用,如果没有该环境变量,启动数据库系统的时候会找不到创建的数据库因而导致数据库连接失败
- ORACLE_HOME
如果没有ORACLE_HOME环境变量, sqlplus无法执行
有PATH可以使得在任何一个目录下都能执行sqlplus
- ORACLE_BASE

3.如何登录Oracle

```
sqlplus / as sysdba
sqlplus scott/tiger
sqlplus /nolog
```

```
# 此时无用户登录
SQL>conn / as sysdba
SQL>conn scott/tiger
# 查看当前连接的用户
SQL>show user
```

4.创建用户和表

```
# sys
# 超级用户
# system
# 管理员用户
# sys的一个子集
# 查看用户
SQL>select username from dba_users order by 1;
SQL>1      # 查看上一条执行的命令, / 执行
# 创建用户
SQL>create user username identified by passwd;
SQL>grant resource to username;
# 如果要用新用户登录会话,需要给它创建会话的权限
SQL>grant create session to username;
# 创建表
SQL>create table tablename(列名1 数据类型, 列名2 数据类型, 列名3 数据类型, ...);
SQL>insert into tablename values(数据(与创建表时定义的列数量与类型相同));
SQL>commit;    # 提交
# 查看表
# 查看存在的表
SQL>select * from table;
# 查看表里的内容
SQL>select * from tablename;
# 表结构
SQL>desc tablename;
```

5.中文乱码

```
# 插入中文字符
SQL>insert into test values(112, '张三', 34)

# 查看当前字符集
SQL>select * from nls_database_parameters where parameter='NLS_CHARACTERSET';
# 修改终端编码方式为默认编码
# 设置Linux环境变量(root用户下)
#   修改/etc/locale.conf: LANG=zh_CN.GBK
#   在/etc/profile文件中加入: export NLS_LANG=SIMPLIFIED\ CHINESE_CHINA.ZHS16GBK
#   sqlplus / as sysdba 执行出现中文即可
```

6. 查看实例启动的参数(如何判断数据库是从spfile还是pfile参数文件启动的?)

```
# 查看参数
SQL> show parameter control_files(控制文件)
SQL> show parameter memory_target(内存)
# 参数文件
SQL> show parameter spfile(二进制可修改文件)
# # spfile数据库名.ora
SQL> create pfile from spfile(可修改文本文件)
# # 在spfile为空时,可以从pfile启动数据库
# # 使用: startup pfile=/路径/init数据库名.ora
#   修改参数文件里面的值
# # spfile
      SQL>alter system set 参数名=值;
# # pfile
# #退出数据库通过编辑文件内容修改参数值
SQL>shutdown immediate;   立即关闭,比较干净的关闭数据库方式
```

7.查看实例和数据库文件(用户是存放在哪类文件中?)

```
# 查看内存
SQL>select * from v$sga;
# 查看进程
SQL>!ps -ef | grep ora_
SQL>host ps -ef | grep ora_
# 查看数据库文件
SQL>select file_id,file_name,bytes,tablespace_name from dba_data_files order by 1;
SQL>host ls -l /oradata/zzdb1
```

8.DBA管理工具-企业管理器EM

```
# OUI
#   执行方式: ./runInstaller
#   安装, 升级或者卸载Oracle软件
# DBCA
#   创建数据库
#   配置数据库选项
#   删除数据库
```

```
# 管理模板
# SQL *Plus
# 日常使用的工具：Oracle数据库中用于获取数据的实用程序
# Oracle Enterprise Manager
# OEM: Architecture
# 图形化，网页版的形式管理数据库
# 启动监听
lsnrctl start
# 启动em
emctl start dbconsole
# 查看em状态
emctl status dbconsole
```