前言

本教程是在Linux下安装oracle12c数据库，由于在有些情况下并没有图形化安装界面，所以这里介绍在linux下通用的安装方式：静默安装，通俗的说就是在linux的命令行窗口安装，这里使用的是oracle linux7.6。

1. 安装前准备工作
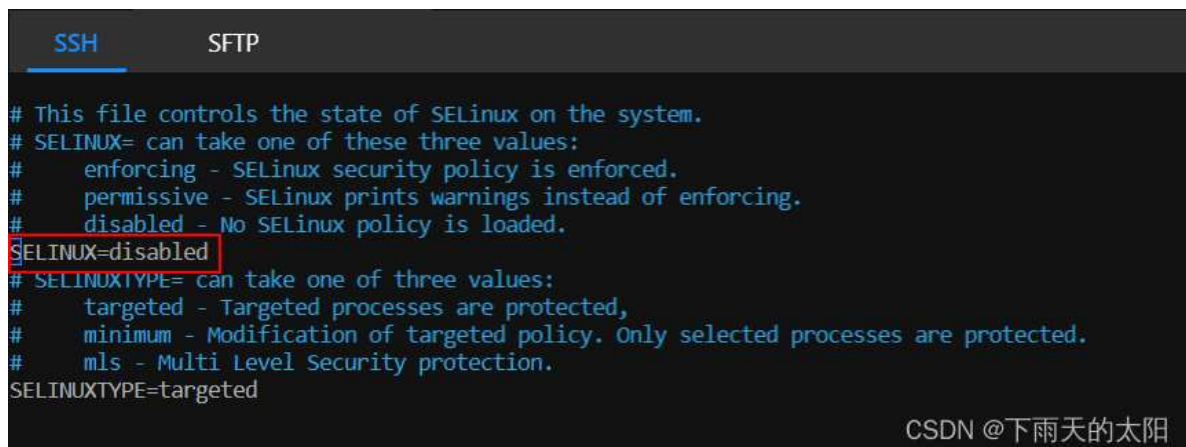
（1）关闭防火墙
执行以下命令禁用并关闭防火墙

```
systemctl  disable  firewalld
systemctl  stop  firewalld
```

（2）关闭selinux
执行vim /etc/selinux/config修改编辑config文件,将SELINUX设置成disabled，如下所示

（3）修改Linux内核参数
执行vim /etc/sysctl.conf，在sysctl.conf文件末尾添加如下参数，然后执行sysctl -p命令，使得配置的内核参数生效

```
fs.aio-max-nr=1048576
fs.file-max=6815744
kernel.sem=250 32000 100 128
kernel.shmall=2097152
kernel.shmmax=2147483648
kernel.shmmni=4096
net.core.rmem_default=1048576
net.core.rmem_max=4194304
net.core.wmem_default=262144
net.core.wmem_max=1048576
net.ipv4.ip_local_port_range=9000 65500
```
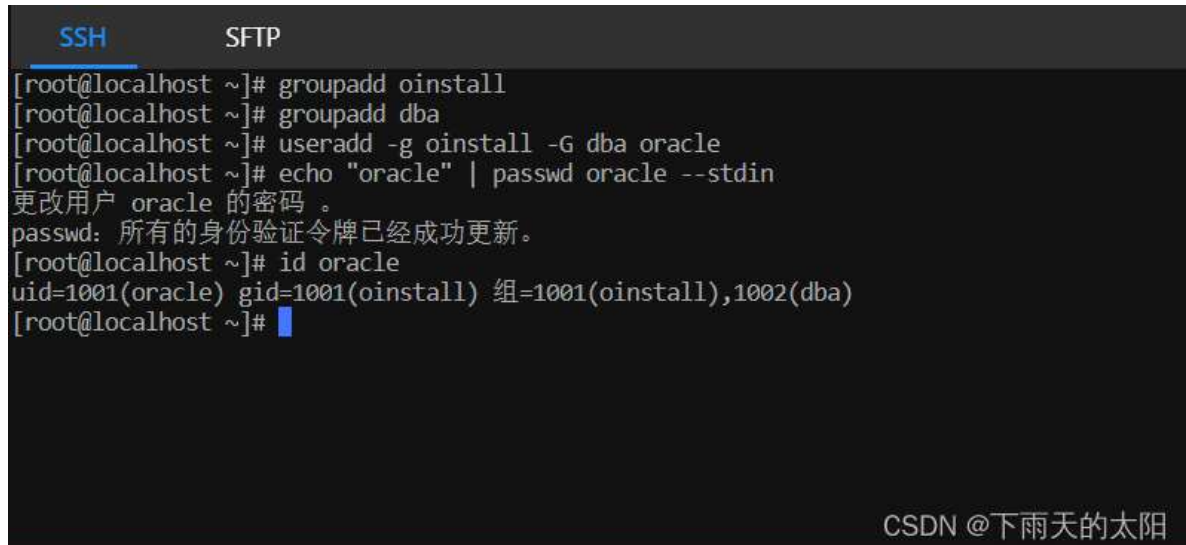
（4）安装Oracle12c的依赖包
yum安装oracle数据库所需要依赖包，如果一次安装失败，可以多试几次，是可以安装成功的

```
yum install binutils gcc gcc-c++ glibc glibc-devel ksh libaio libaio-devel
libgcc libstdc++ libstdc++-devel libXext libXtst libX11 libXau libxcb libXi make
sysstat libnsl.x86_64
```

（5）创建Oracle用户和用户组
依次执行下面命令创建oracle用户和用户组，然后后执行id oracle，如果显示如下图那样，说明创建成功

```
groupadd oinstall
groupadd dba
useradd -g oinstall -G dba oracle
echo "oracle" | passwd oracle --stdin
```


（6）修改oracle用户权限文件
执行vim /etc/security/limits.conf，在文件中添加以下内容

```
oracle   soft     nofile   65536
oracle   hard     nofile   65536
oracle   soft     nproc    2047
oracle   hard     nproc    16384
oracle   soft     stack    10240
```

执行vim /etc/pam.d/login，在文件中添加以下内容

```
session required          /lib64/security/pam_limits.so
session required          pam_limits.so
```

执行vim /etc/profile，在文件中添加以下内容,然后执行source /etc/profile使得修改生效

```
#oracle config
if [ $USER = "oracle" ]; then
  if [ $SHELL = "/bin/ksh" ]; then
      ulimit -p 16384
      ulimit -n 65536
  else
      ulimit -u 16384 -n 65536
  fi
fi
```
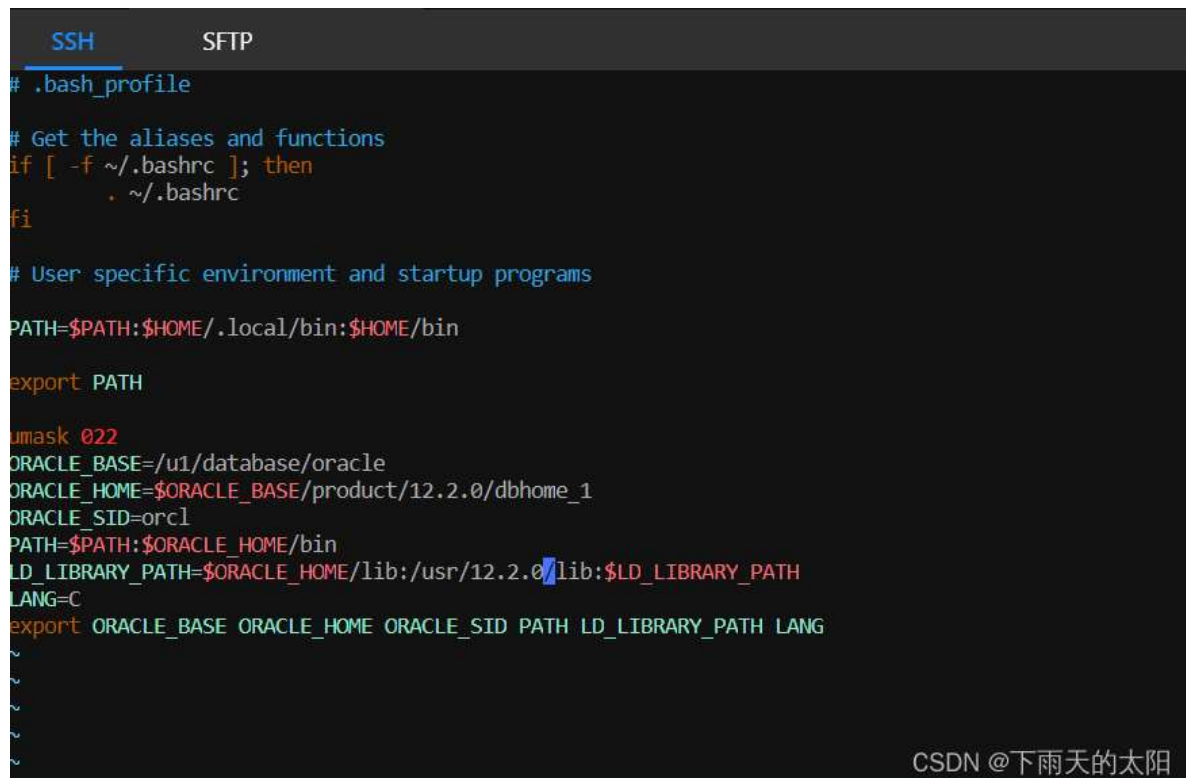
（7）创建安装目录和文件权限

```
mkdir -p /u1/database/oracle/product/12.2.0
mkdir /u1/database/oracle/oradata
mkdir /u1/database/oracle/inventory
mkdir /u1/database/oracle/fast_recovery_area
chown -R oracle:oinstall /u1/database/oracle/
chmod -R 755 /u1/database/oracle/
```

（8）配置Oracle环境变量

执行vim /home/oracle/.bash_profile，在文件中添加如下内容，然后执行source
/home/oracle/.bash_profile,使得环境变量生效

```
umask 022
ORACLE_BASE=/u1/database/oracle
ORACLE_HOME=$ORACLE_BASE/product/12.2.0/dbhome_1
ORACLE_SID=orcl
PATH=$PATH:$ORACLE_HOME/bin
LD_LIBRARY_PATH=$ORACLE_HOME/lib:/usr/12.2.0/lib:$LD_LIBRARY_PATH
LANG=C
export ORACLE_BASE ORACLE_HOME ORACLE_SID PATH LD_LIBRARY_PATH LANG
```


（9）编辑hosts和hostname文件

```
执行vim  /etc/hostname,添加如下内容
jamysong
执行vim  /etc/hosts，添加如下内容，这里192.168.227.73地址可以通过执行ifconfig查询到
192.168.227.73   jamysong
然后执行init 6重启后，可以看到修改已经生效
```

（10）上传oracle12c的二进制安装包并解压

官方下载地址

这里将linuxx64_12201_database.zip上传到/usr/local/src文件夹下，然后执行unzip linuxx64_12201_database.zip来解压

然后将reponse文件夹整个复制到/home/oracle/

```
cp  -R  /usr/local/src/database/response   /home/oracle/
chmod  -R  777  /home/oracle/response
```


执行vim db_install.rsp,将db_install.rsp脚本中这些变量值设置成如下内容（有的参数修改值，没有的的参数新增即可）：
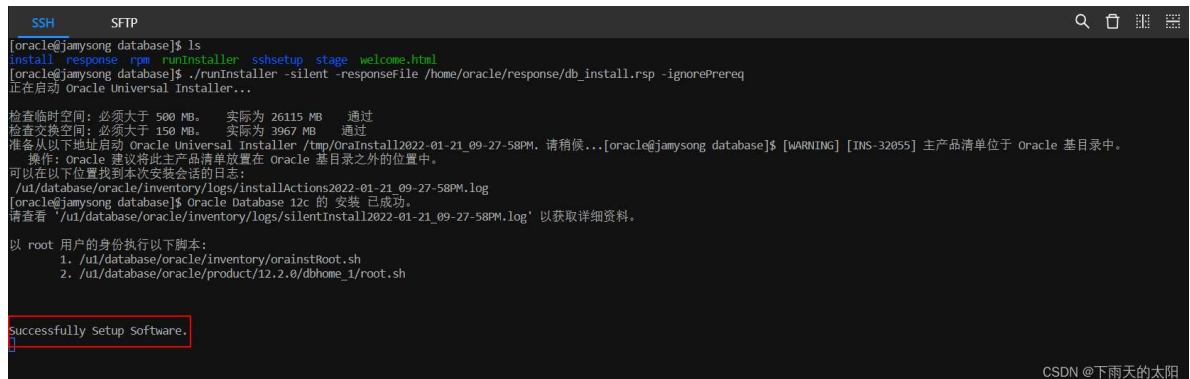
```
oracle.install.option=INSTALL_DB_SWONLY
ORACLE_HOSTNAME=jamysong
UNIX_GROUP_NAME=oinstall
INVENTORY_LOCATION=/u1/database/oracle/inventory
SELECTED_LANGUAGES=en,zh_CN
ORACLE_HOME=/u1/database/oracle/product/12.2.0/dbhome_1
ORACLE_BASE=/u1/database/oracle
oracle.install.db.InstallEdition=EE
oracle.install.db.OSDBA_GROUP=dba
oracle.install.db.OSOPER_GROUP=dba
```

```
oracle.install.db.OSBACKUPDBA_GROUP=dba
oracle.install.db.OSDGDBA_GROUP=dba
oracle.install.db.OSKMDBA_GROUP=dba
oracle.install.db.OSRACDBA_GROUP=dba
DECLINE_SECURITY_UPDATES=true
```

2. 安装数据库软件

先切换到oracle用户下执行安装数据库软件，如果出现如下页面表示安装成功

```
su  oracle
source /home/oracle/.bash_profile
cd /usr/local/src/database/
./runInstaller -silent -responseFile /home/oracle/response/db_install.rsp -
ignorePrereq
```
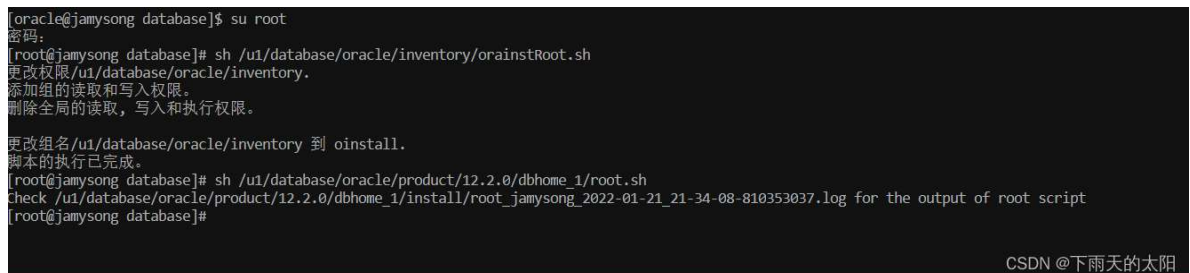
然后切换到root用户下执行下面命令

```
su root
sh /u1/database/oracle/inventory/orainstRoot.sh
sh /u1/database/oracle/product/12.2.0/dbhome_1/root.sh
```

3. 配置监听

再次执行su oracle切换到oracle用户下执行下面命令，此时直接执行可能会报如下错误

```
netca /silent /responseFile /home/oracle/response/netca.rsp
```

```
SSH        SFTP
[root@jamysong database]# su oracle
[oracle@jamysong database]$ netca /silent /responseFile /home/oracle/response/netca.rsp
bash: netca: 未找到命令...
[oracle@jamysong database]$
```

那么先执行下source ~/.bash_profile,如果出现如图所示，那么就可以执行上面的命令了


```
SSH        SFTP                                                                                    🔍 🗑 ▦ ▦
[oracle@jamysong database]$ netca /silent /responseFile /home/oracle/response/netca.rsp
bash: netca: 未找到命令...
[oracle@jamysong database]$ source ~/.bash_profile
[oracle@jamysong database]$ emv
bash: emv: command not found...
[oracle@jamysong database]$ env
XDG_SESSION_ID=1
HOSTNAME=jamysong
SHELL=/bin/bash
TERM=xterm-256color
HISTSIZE=1000
SSH_CLIENT=192.168.227.1 56592 22
SSH_TTY=/dev/pts/0
USER=oracle
LD_LIBRARY_PATH=/u1/database/oracle/product/12.2.0/dbhome_1/lib:/usr/12.2.0/lib:
LS_COLORS=rs=0:di=38;5;27:ln=38;5;51:mh=44;38;5;15:pi=40;38;5;11:so=38;5;13:do=38;5;5:bd=48;5;232;38;5;11:cd=48;5;232;38;5;3:or=48;5;232;38;5;9:mi=05;48;5;232;38;5;15:su=38;5;196;38;5;1
5:sg=48;5;11;38;5;16:ca=48;5;196;38;5;226:tw=48;5;10;38;5;16:ow=48;5;10;38;5;21:st=48;5;21;38;5;15:ex=38;5;34:*.tar=38;5;9:*.tgz=38;5;9:*.arc=38;5;9:*.arj=38;5;9:*.taz=38;5;9:*.lha=38;5
;9:*.lz4=38;5;9:*.lzh=38;5;9:*.lzma=38;5;9:*.tlz=38;5;9:*.txz=38;5;9:*.tzo=38;5;9:*.t7z=38;5;9:*.zip=38;5;9:*.z=38;5;9:*.Z=38;5;9:*.dz=38;5;9:*.gz=38;5;9:*.lrz=38;5;9:*.lz=38;5;9:*.lzo=
38;5;9:*.xz=38;5;9:*.bz2=38;5;9:*.bz=38;5;9:*.tbz=38;5;9:*.tbz2=38;5;9:*.tz=38;5;9:*.deb=38;5;9:*.rpm=38;5;9:*.jar=38;5;9:*.war=38;5;9:*.ear=38;5;9:*.sar=38;5;9:*.rar=38;5;9:*.alz=38;5;
9:*.ace=38;5;9:*.zoo=38;5;9:*.cpio=38;5;9:*.7z=38;5;9:*.rz=38;5;9:*.cab=38;5;9:*.jpg=38;5;13:*.jpeg=38;5;13:*.gif=38;5;13:*.bmp=38;5;13:*.pbm=38;5;13:*.pgm=38;5;13:*.ppm=38;5;13:*.tga=3
8;5;13:*.xbm=38;5;13:*.xpm=38;5;13:*.tif=38;5;13:*.tiff=38;5;13:*.png=38;5;13:*.svg=38;5;13:*.svgz=38;5;13:*.mng=38;5;13:*.pcx=38;5;13:*.mov=38;5;13:*.mpg=38;5;13:*.mpeg=38;5;13:*.m2v=
38;5;13:*.mkv=38;5;13:*.webm=38;5;13:*.ogm=38;5;13:*.mp4=38;5;13:*.m4v=38;5;13:*.mp4v=38;5;13:*.vob=38;5;13:*.qt=38;5;13:*.nuv=38;5;13:*.wmv=38;5;13:*.asf=38;5;13:*.rm=38;5;13:*.rmvb=38;
5;13:*.flc=38;5;13:*.avi=38;5;13:*.fli=38;5;13:*.flv=38;5;13:*.gl=38;5;13:*.dl=38;5;13:*.xcf=38;5;13:*.xwd=38;5;13:*.yuv=38;5;13:*.cgm=38;5;13:*.emf=38;5;13:*.axv=38;5;13:*.anx=38;5;13:
*.ogv=38;5;13:*.ogx=38;5;13:*.aac=38;5;45:*.au=38;5;45:*.flac=38;5;45:*.mid=38;5;45:*.midi=38;5;45:*.mka=38;5;45:*.mp3=38;5;45:*.mpc=38;5;45:*.ogg=38;5;45:*.ra=38;5;45:*.wav=38;5;45:*.a
xa=38;5;45:*.oga=38;5;45:*.spx=38;5;45:*.xspf=38;5;45:
ORACLE_SID=orcl
ORACLE_BASE=/u1/database/oracle
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/root/bin:/home/oracle/.local/bin:/home/oracle/bin:/u1/database/oracle/product/12.2.0/dbhome_1/bin
MAIL=/var/spool/mail/root
PWD=/usr/local/src/database
LANG=C                                                          执行env后，能在PATH变量中看到这个路径，就可以继续执行后面的命令了
HISTCONTROL=ignoredups
HOME=/home/oracle
SHLVL=6
LOGNAME=oracle
SSH_CONNECTION=192.168.227.1 56592 192.168.227.73 22
XDG_DATA_DIRS=/root/.local/share/flatpak/exports/share:/var/lib/flatpak/exports/share:/usr/local/share:/usr/share
LESSOPEN=||/usr/bin/lesspipe.sh %s
XDG_RUNTIME_DIR=/run/user/0
ORACLE_HOME=/u1/database/oracle/product/12.2.0/dbhome_1
_=/usr/bin/env
[oracle@jamysong database]$                                                                   CSDN @下雨天的太阳
```

再次执行netca /silent /responseFile /home/oracle/response/netca.rsp，看到如下图就说明监听成功启动


```
[oracle@jamysong database]$ netca /silent /responseFile /home/oracle/response/netca.rsp

Parsing command line arguments:
    Parameter "silent" = true
    Parameter "responsefile" = /home/oracle/response/netca.rsp
Done parsing command line arguments.
Oracle Net Services Configuration:
Profile configuration complete.
Oracle Net Listener Startup:
    Running Listener Control:
      /u1/database/oracle/product/12.2.0/dbhome_1/bin/lsnrctl start LISTENER
    Listener Control complete.
    Listener started successfully.
Listener configuration complete.
Oracle Net Services configuration successful. The exit code is 0
[oracle@jamysong database]$                                                  CSDN @下雨天的太阳
```

执行netstat -tunlp | grep 1521，查看监听的端口号，如下图所示这样，到此监听配置完毕


```
[oracle@jamysong database]$ netstat -tunlp | grep 1521
(Not all processes could be identified, non-owned process info
 will not be shown, you would have to be root to see it all.)
tcp6       0      0 :::1521                    :::*                 LISTEN      11966/tnslsnr
[oracle@jamysong database]$
```

查看监听状态 lsnrctl status
启动监听器： lsnrctl start
关闭监听器： lsnrctl stop

4. 创建数据库

执行vim /home/oracle/response/dbca.rsp命令编辑文件，设置以下内容，下面两个应答文件二选一即可

应答文件一：使用此应答文件创建的数据库在创建用户时需要在用户名前加上C##

```
responseFileVersion=/oracle/assistants/rspfmt_dbca_response_schema_v12.2.0
gdbName=orcl
sid=orcl
databaseConfigType=SI
createAsContainerDatabase=true
numberOfPDBs=1
pdbName=orclpdb
templateName=/u1/database/oracle/product/12.2.0/dbhome_1/assistants/dbca/templat
es/General_Purpose.dbc
emExpressPort=5500
omsPort=0
characterSet=AL32UTF8
listeners=LISTENER
memoryPercentage=40
automaticMemoryManagement=false
totalMemory=0
```

应答文件二：使用此应答文件创建的数据库在创建用户时不需要在用户名前加上C##

```
responseFileVersion=/oracle/assistants/rspfmt_dbca_response_schema_v12.2.0
gdbName=orcl
sid=orcl
databaseConfigType=SI
createAsContainerDatabase=false
templateName=/u1/database/oracle/product/12.2.0/dbhome_1/assistants/dbca/templat
es/General_Purpose.dbc
emExpressPort=5500
omsPort=0
characterSet=AL32UTF8
listeners=LISTENER
memoryPercentage=40
automaticMemoryManagement=false
totalMemory=800
```

然后执行如下命令创建数据库实例，分别要给SYS,SYSTEM,PDBADMIN三个用户设置密码

```
dbca -silent -createDatabase  -responseFile  /home/oracle/response/dbca.rsp
```

如图所示，表示创建数据库实例完成


```
WARNING] [DBT-06208] The 'SYS' password entered does not conform to the Oracle recommended standards.
   CAUSE:
a. Oracle recommends that the password entered should be at least 8 characters in length, contain at least 1 uppercase character, 1 lower case character and 1 digit [0-9].
b.The password entered is a keyword that Oracle does not recommend to be used as password
   ACTION: Specify a strong password. If required refer Oracle documentation for guidelines.
WARNING] [DBT-06208] The 'SYSTEM' password entered does not conform to the Oracle recommended standards.
   CAUSE:
a. Oracle recommends that the password entered should be at least 8 characters in length, contain at least 1 uppercase character, 1 lower case character and 1 digit [0-9].
b.The password entered is a keyword that Oracle does not recommend to be used as password
   ACTION: Specify a strong password. If required refer Oracle documentation for guidelines.
WARNING] [DBT-06208] The 'PDBADMIN' password entered does not conform to the Oracle recommended standards.
   CAUSE:
a. Oracle recommends that the password entered should be at least 8 characters in length, contain at least 1 uppercase character, 1 lower case character and 1 digit [0-9].
b.The password entered is a keyword that Oracle does not recommend to be used as password
   ACTION: Specify a strong password. If required refer Oracle documentation for guidelines.
Copying database files
1% complete
3% complete
25% complete
Creating and starting Oracle instance
26% complete
30% complete
31% complete
35% complete
38% complete
39% complete
41% complete
Completing Database Creation
42% complete
43% complete
44% complete
46% complete
49% complete
50% complete
Creating Pluggable Databases
65% complete
75% complete
Executing Post Configuration Actions
100% complete
Look at the log file "/u1/database/oracle/cfgtoollogs/dbca/orcl/orcl.log" for further details.
oracle@jamysong response]$
```

登录数据库

```
sqlplus / as sysdba
```

创建数据库用户

```
create user 用户名 identified by 口令[即密码];
例如:create user c##jamy identified by 123456;
```
这里一定注意：用户名前一定要加c##,否则会报错

给用户授权

```
grant connect, resource，dba to 用户名;
例如：grant connect, resource,dba to c##jamy;
```

```
[oracle@jamysong response]$ sqlplus / as sysdba

SQL*Plus: Release 12.2.0.1.0 Production on Fri Jan 21 22:16:08 2022

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


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

SQL> create user c##jamy identified by 123456;

User created.

SQL> grant connect, resource, dba to c##jamy;
grant connect, resource, dba to c##jamy
                                   *
ERROR at line 1:
ORA-01919: role 'RESOURCE???DBA' does not exist


SQL> grant connect, resource,dba to c##jamy;

Grant succeeded.

SQL>
```
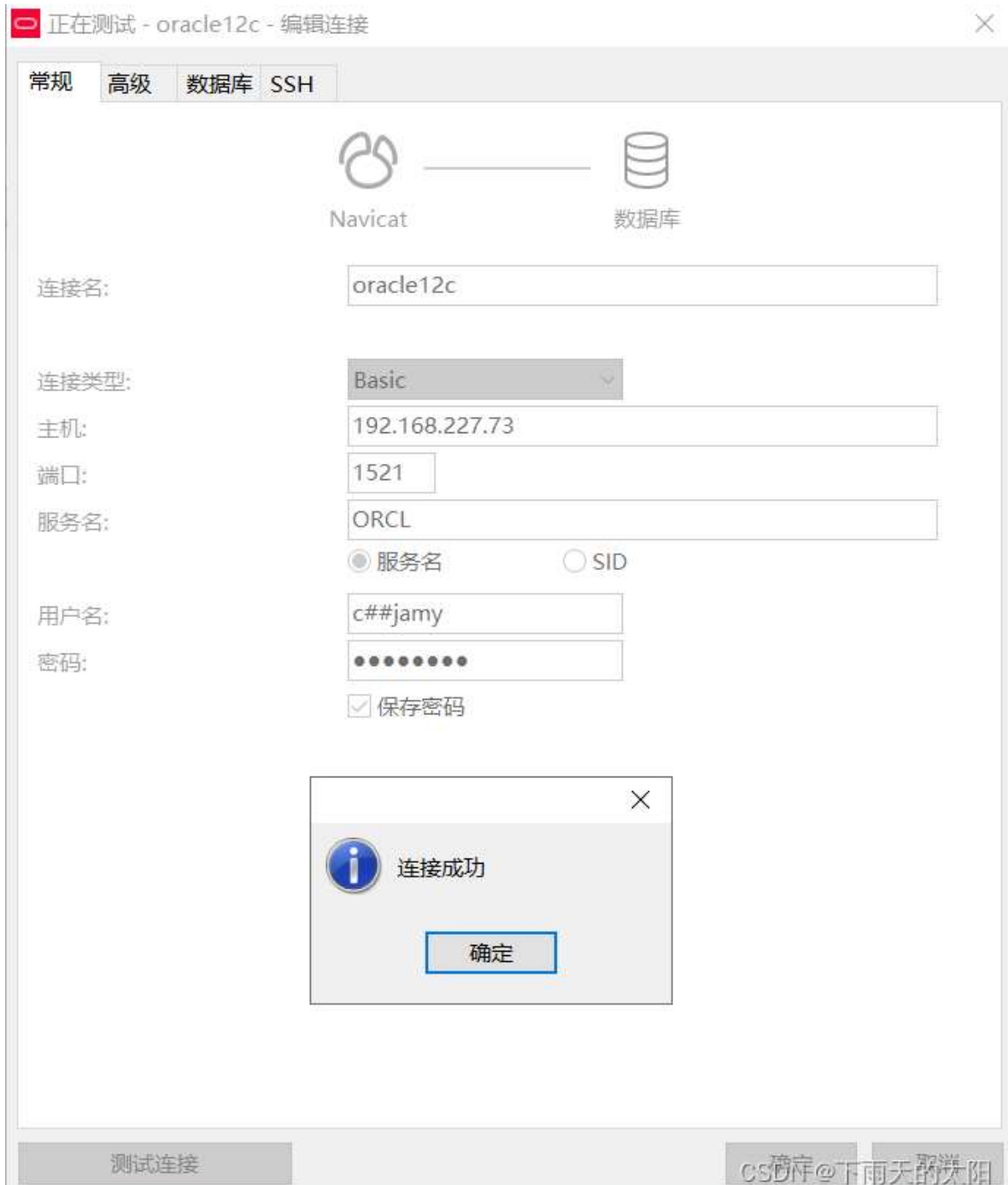
客户端工具Navicat登录数据库

如果连接失败

先考虑执行lsnrctl start重启监听
再执行sqlplus / as sysdba登录数据库
执行startup;启动数据库实例如图所示

```
SQL> startup;
ORACLE instance started.

Total System Global Area 1241513984 bytes
Fixed Size                   8792248 bytes
Variable Size              452986696 bytes
Database Buffers           771751936 bytes
Redo Buffers                 7983104 bytes
Database mounted.
Database opened.
SQL>
```

CSDN @下雨天的太阳