前言
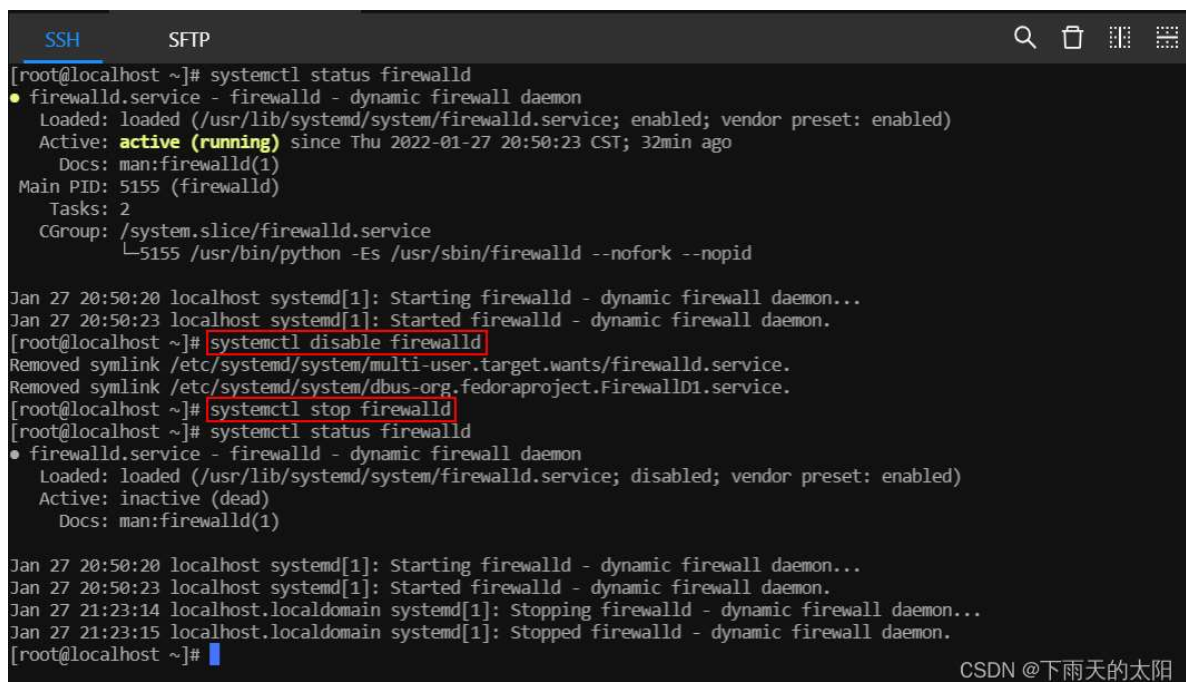
oracle19c数据库安装相对于<u>oracle12c安装</u>还是有些不一样的，所以今天再来记录一下安装过程，本次安装仍然是基于Oracle linux7.6环境来安装，仅供参考

1. 安装前准备工作

（1）关闭防火墙

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


（2）禁用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）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192.168.227.75地址可以通过执行ifconfig查询到
192.168.227.75    jamysong
然后执行init 6重启后，可以看到修改已经生效
```

```
localhost
HOSTNAME=jamysong
~
~
~
~
~
~
```



```
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.227.75  jamysong
~
~
~
~
```

然后执行init 6重启oracle linux，可以看到如下所示


```
[root@jamysong ~]#
```

（4）禁用透明 HugePages

vim /etc/default/grub，在GRUB_CMDLINE_LINUX参数的末尾添加transparent_hugepage=never。
编辑如下所示


```
GRUB_TIMEOUT=5
GRUB_DISTRIBUTOR="$(sed 's, release .*$,,g' /etc/system-release)"
GRUB_DEFAULT=saved
GRUB_DISABLE_SUBMENU=true
GRUB_TERMINAL_OUTPUT="console"
GRUB_CMDLINE_LINUX="rd.lvm.lv=ol/root rd.lvm.lv=ol/swap rhgb quiet transparent_hugepage=never"
GRUB_DISABLE_RECOVERY="true"
~
~
~
```
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使用修改后的配置生成/boot/grub2/grub.cfg文件，执行grub2-mkconfig -o /boot/grub2/grub.cfg


```
[root@jamysong default]# grub2-mkconfig -o /boot/grub2/grub.cfg
Generating grub configuration file ...
Found linux image: /boot/vmlinuz-4.14.35-1818.3.3.el7uek.x86_64
Found initrd image: /boot/initramfs-4.14.35-1818.3.3.el7uek.x86_64.img
Found linux image: /boot/vmlinuz-3.10.0-957.el7.x86_64
Found initrd image: /boot/initramfs-3.10.0-957.el7.x86_64.img
Found linux image: /boot/vmlinuz-0-rescue-1a18f81d8ab442dc835b9666c933a33c
Found initrd image: /boot/initramfs-0-rescue-1a18f81d8ab442dc835b9666c933a33c.img
done
[root@jamysong default]#
```
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执行init 6重启 oracle linux以使更改生效

执行cat /sys/kernel/mm/transparent_hugepage/enabled查看，如下图所示说明已经禁用HugePages


```
[root@jamysong ~]# cat /sys/kernel/mm/transparent_hugepage/enabled
always madvise [never]
[root@jamysong ~]#
```

（5）安装依赖包

```
yum install -y \
  bc \
  binutils \
  compat-libcap1 \
  compat-libstdc++-33 \
  elfutils-libelf \
  elfutils-libelf-devel \
  fontconfig-devel \
  glibc \
  glibc-devel \
  ksh \
  libaio \
  libaio-devel \
  libX11 \
  libXau \
  libxi \
```

```
    libXtst \
    libXrender \
    libXrender-devel \
    libgcc \
    libstdc++ \
    libstdc++-devel \
    libxcb \
    make \
    smartmontools \
    sysstat

yum install -y \
    net-tools \
    gcc \
    gcc-c++ \
    gcc-info \
    gcc-locale \
    gcc48 \
    gcc48-info \
    gcc48-locale \
    gcc48-c++
```

(6) 创建用户和用户组

```
groupadd -g 54321 oinstall
groupadd -g 54322 dba
groupadd -g 54323 oper
groupadd -g 54324 backupdba
groupadd -g 54325 dgdba
groupadd -g 54326 kmdba
groupadd -g 54330 racdba
useradd -u 54321 -g oinstall -G dba,oper,backupdba,dgdba,kmdba,racdba oracle
echo "oracle" | passwd oracle --stdin
```

(7) 为 Oracle 用户设置安全限制
执行以下命令编辑30-oracle.conf文件，设置oracle用户的安全限制

```
cat >/etc/security/limits.d/30-oracle.conf<<EOF
oracle    soft    nofile    1024
oracle    hard    nofile    65536
oracle    soft    nproc    16384
oracle    hard    nproc    16384
oracle    soft    stack    10240
oracle    hard    stack    32768
oracle    hard    memlock    134217728
oracle    soft    memlock    134217728
EOF
```

(8) 修改linux内核参数
执行以下命令编辑98-oracle.conf文件

```
cat >/etc/sysctl.d/98-oracle.conf<<EOF
fs.file-max = 6815744
kernel.sem = 250 32000 100 128
kernel.shmmni = 4096
```

```
kernel.shmall = 1073741824
kernel.shmmax = 4398046511104
kernel.panic_on_oops = 1
net.core.rmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_default = 262144
net.core.wmem_max = 1048576
net.ipv4.conf.all.rp_filter = 2
net.ipv4.conf.default.rp_filter = 2
fs.aio-max-nr = 1048576
net.ipv4.ip_local_port_range = 9000 65500
EOF
```

然后执行sysctl --system命令重新加载内核参数

  (9) 为 Oracle Database 19c 创建目录

```
mkdir -p /u01/app/oracle/product/19.3.0/dbhome_1
mkdir -p /u01/oradata
chown -R oracle:oinstall /u01
chmod -R 775 /u01
```

  (10) 为 Oracle 用户配置 Linux 环境变量
执行su oracle切换到oracle用户下，然后执行vim ~/.bash_profile命令设置环境变量

```
# Oracle Settings
export TMP=/tmp
export TMPDIR=$TMP
export ORACLE_HOSTNAME=jamysong
export ORACLE_UNQNAME=cdb1
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/19.3.0/dbhome_1
export ORA_INVENTORY=/u01/app/oraInventory
export ORACLE_SID=orcl
export PDB_NAME=pdb1
export DATA_DIR=/u01/oradata
export PATH=$ORACLE_HOME/bin:$PATH
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
export CLASSPATH=$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib
```

编辑完成后，执行source ~/.bash_profile，使oracle用户环境变量生效。

  (11) 上传oracle19c二进制安装文件
将oracle19c二进制安装文件上传至/usr/local/src目录下并执行以下命令解压文件至安装目录

```
unzip LINUX.X64_193000_db_home.zip -d $ORACLE_HOME
```

2. 安装数据库

在oracle用户下，执行cd $ORACLE_HOME命令切换到oracle安装目录下，然后执行数据库安装命令

```
./runInstaller -ignorePrereq -waitforcompletion -silent \
  oracle.install.option=INSTALL_DB_SWONLY \
  ORACLE_HOSTNAME=${ORACLE_HOSTNAME} \
  UNIX_GROUP_NAME=oinstall \
```

```
INVENTORY_LOCATION=${ORA_INVENTORY} \
ORACLE_HOME=${ORACLE_HOME} \
ORACLE_BASE=${ORACLE_BASE} \
oracle.install.db.InstallEdition=EE \
oracle.install.db.OSDBA_GROUP=dba \
oracle.install.db.OSBACKUPDBA_GROUP=backupdba \
oracle.install.db.OSDGDBA_GROUP=dgdba \
oracle.install.db.OSKMDBA_GROUP=kmdba \
oracle.install.db.OSRACDBA_GROUP=racdba \
SECURITY_UPDATES_VIA_MYORACLESUPPORT=false \
DECLINE_SECURITY_UPDATES=true
```

如下图所示表示安装数据库软件成功

然后切换到root用户下，执行以下两个脚本

```
sh /u01/app/oraInventory/orainstRoot.sh
sh /u01/app/oracle/product/19.3.0/dbhome_1/root.sh
```


3. 配置监听

执行su oracle命令切换到oracle用户,使用以下命令启动监听

```
lsnrctl start     //启动oracle数据库监听
lsnrctl status    //查看oracle数据库监听状态
lsnrctl stop      //停用oracle数据库监听
```

```
[oracle@jamysong dbhome_1]$ lsnrctl start

LSNRCTL for Linux: Version 19.0.0.0.0 - Production on 28-JAN-2022 00:05:35

Copyright (c) 1991, 2019, Oracle.  All rights reserved.

Starting /u01/app/oracle/product/19.3.0/dbhome_1/bin/tnslsnr: please wait...

TNSLSNR for Linux: Version 19.0.0.0.0 - Production
Log messages written to /u01/app/oracle/diag/tnslsnr/jamysong/listener/alert/log.xml
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=jamysong)(PORT=1521)))

Connecting to (ADDRESS=(PROTOCOL=tcp)(HOST=)(PORT=1521))
STATUS of the LISTENER
------------------------
Alias                     LISTENER
Version                   TNSLSNR for Linux: Version 19.0.0.0.0 - Production
Start Date                28-JAN-2022 00:05:35
Uptime                    0 days 0 hr. 0 min. 0 sec
Trace Level               off
Security                  ON: Local OS Authentication
SNMP                      OFF
Listener Log File         /u01/app/oracle/diag/tnslsnr/jamysong/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=jamysong)(PORT=1521)))
The listener supports no services
The command completed successfully
[oracle@jamysong dbhome_1]$
```

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4. 创建数据库

执行以下命令创建数据库

```
dbca -silent -createDatabase \
  -templateName General_Purpose.dbc \
  -gdbname ${ORACLE_SID} -sid  ${ORACLE_SID} \
  -responseFile NO_VALUE \
  -characterSet AL32UTF8 \
  -sysPassword 123456 \
  -systemPassword 123456 \
  -createAsContainerDatabase true \
  -numberOfPDBs 1 \
  -pdbName ${PDB_NAME} \
  -pdbAdminPassword 123456 \
  -databaseType MULTIPURPOSE \
  -automaticMemoryManagement false \
  -totalMemory 800 \
  -storageType FS \
  -datafileDestination "${DATA_DIR}" \
  -redoLogFileSize 50 \
  -emConfiguration NONE \
  -ignorePreReqs
```

创建数据库过程如下：

```
[oracle@jamysong dbhome_1]$ dbca -silent -createDatabase \
>    -templateName General_Purpose.dbc \
>    -gdbname ${ORACLE_SID} -sid  ${ORACLE_SID} \
>    -responseFile NO_VALUE \
>    -characterSet AL32UTF8 \
>    -sysPassword 123456 \
>    -systemPassword 123456 \
>    -createAsContainerDatabase true \
>    -numberOfPDBs 1 \
>    -pdbName ${PDB_NAME} \
>    -pdbAdminPassword 123456 \
>    -databaseType MULTIPURPOSE \
```

```
>   -automaticMemoryManagement false \
>   -totalMemory 800 \
>   -storageType FS \
>   -datafileDestination "${DATA_DIR}" \
>   -redoLogFileSize 50 \
>   -emConfiguration NONE \
>   -ignorePreReqs
[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.
Prepare for db operation
8% complete
Copying database files
31% complete
Creating and starting Oracle instance
32% complete
36% complete
40% complete
43% complete
46% complete
Completing Database Creation
51% complete
53% complete
54% complete
Creating Pluggable Databases
58% complete
77% complete
Executing Post Configuration Actions
100% complete
Database creation complete. For details check the logfiles at:
 /u01/app/oracle/cfgtoollogs/dbca/orcl.
```

```
Database Information:
Global Database Name:orcl
System Identifier(SID):orcl
Look at the log file "/u01/app/oracle/cfgtoollogs/dbca/orcl/orcl.log" for
further details.
```

然后使用sqlplus / as sysdba登录数据库

```
创建用户
create user c##jamy identified by 123456;
给用户授权
grant connect, resource,dba to c##jamy;
```

```
[oracle@jamysong dbhome_1]$ sqlplus / as sysdba

SQL*Plus: Release 19.0.0.0.0 - Production on Fri Jan 28 00:33:18 2022
Version 19.3.0.0.0

Copyright (c) 1982, 2019, Oracle.  All rights reserved.


Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.3.0.0.0

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

User created.

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

Grant succeeded.

SQL>
```

navicat客户端登录数据库
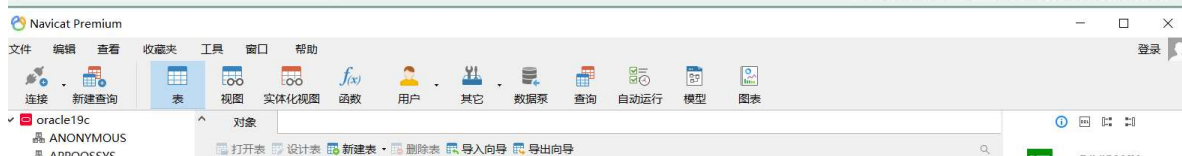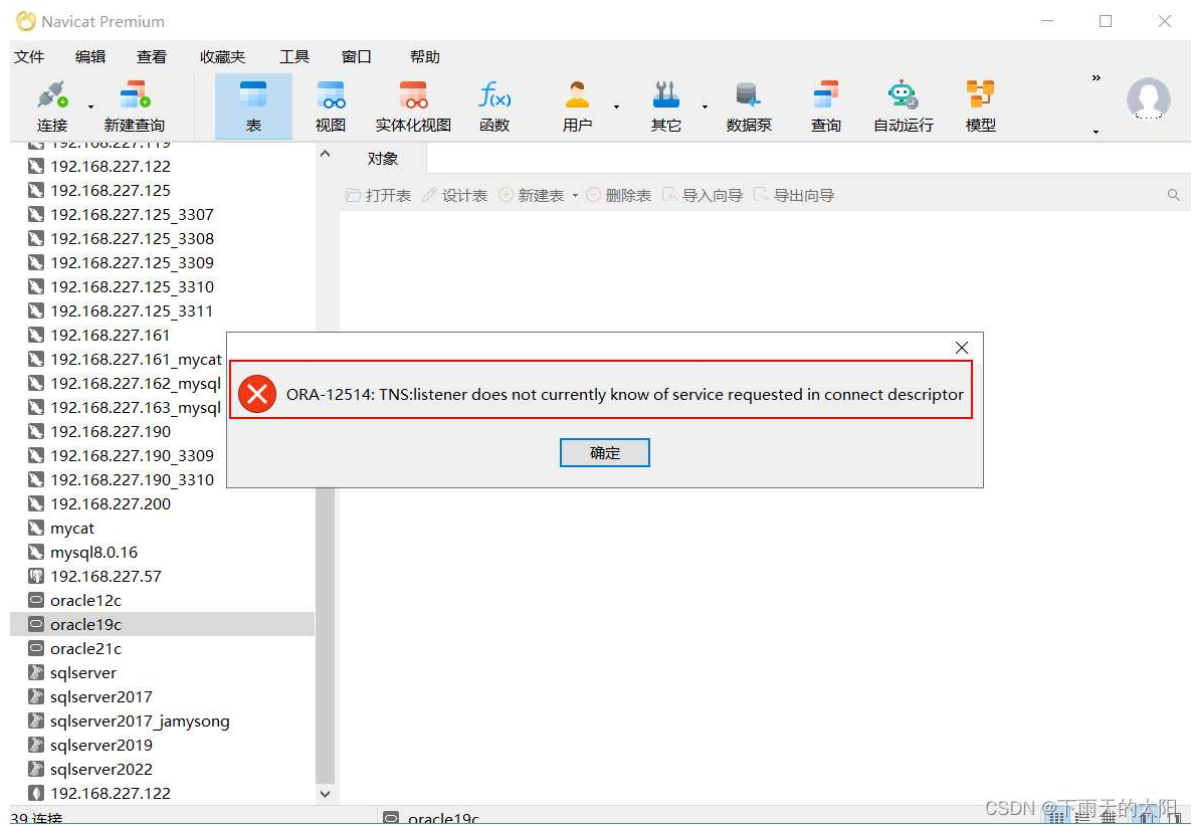
如果客户端连接数据库报错如下，有可能是数据库实例没有启动

可以登录服务器端执行如下命令：
查看数据库监听
lsnrctl status
如果没有开启监听，需要执行 lsnrctl start 开启监听
如下图所示表示已开启监听

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

LSNRCTL for Linux: Version 19.0.0.0.0 - Production on 03-OCT-2022 11:36:07

Copyright (c) 1991, 2019, Oracle.  All rights reserved.

Connecting to (ADDRESS=(PROTOCOL=tcp)(HOST=)(PORT=1521))
STATUS of the LISTENER
------------------------
Alias                     LISTENER
Version                   TNSLSNR for Linux: Version 19.0.0.0.0 - Production
Start Date                03-OCT-2022 11:25:44
Uptime                    0 days 0 hr. 10 min. 23 sec
Trace Level               off
Security                  ON: Local OS Authentication
SNMP                      OFF
Listener Log File         /u01/app/oracle/diag/tnslsnr/jamysong/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=jamysong)(PORT=1521)))
The listener supports no services
The command completed successfully
[oracle@jamysong ~]$
```
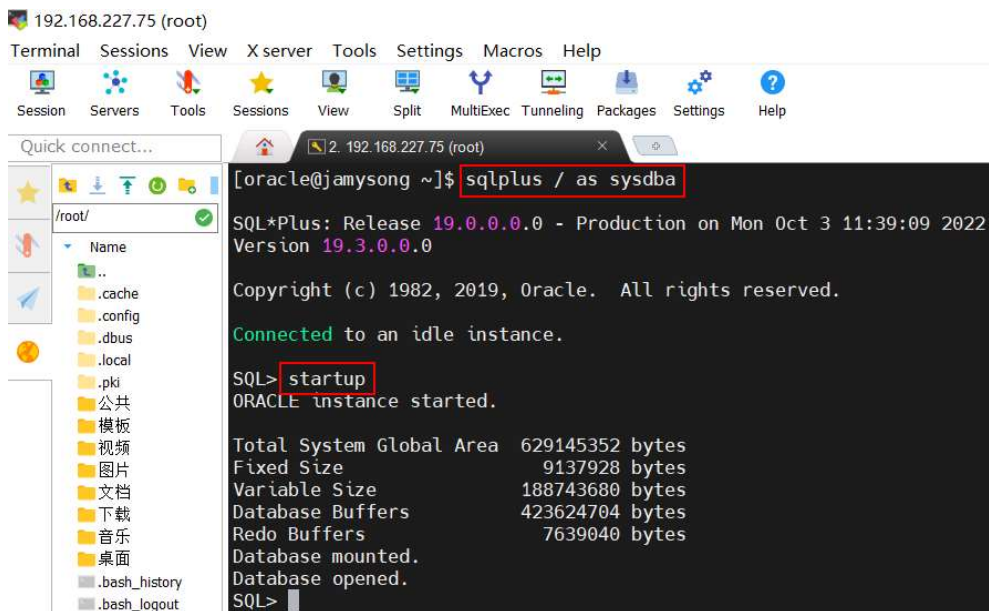
开启监听以后执行 `sqlplus / as sysdba`
最后执行**startup** 来启动数据库实例，然后用数据库客户端就可以连接了

192.168.227.75 (root)

Terminal Sessions View X server Tools Settings Macros Help

Session Servers Tools Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...   2. 192.168.227.75 (root)

/root/

Name
..
.cache
.config
.dbus
.local
.pki
公共
模板
视频
图片
文档
下载
音乐
桌面
.bash_history
.bash_logout
.bash_profile
.bashrc
.cshrc
.esd_auth
.ICEauthority
.tcshrc
.viminfo

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

SQL*Plus: Release 19.0.0.0.0 - Production on Mon Oct 3 11:39:09 2022
Version 19.3.0.0.0

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Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area  629145352 bytes
Fixed Size                  9137928 bytes
Variable Size             188743680 bytes
Database Buffers          423624704 bytes
Redo Buffers                7639040 bytes
Database mounted.
Database opened.
SQL>
```

再次通过navicat客户端连接数据库，如下图所示可以连接了