

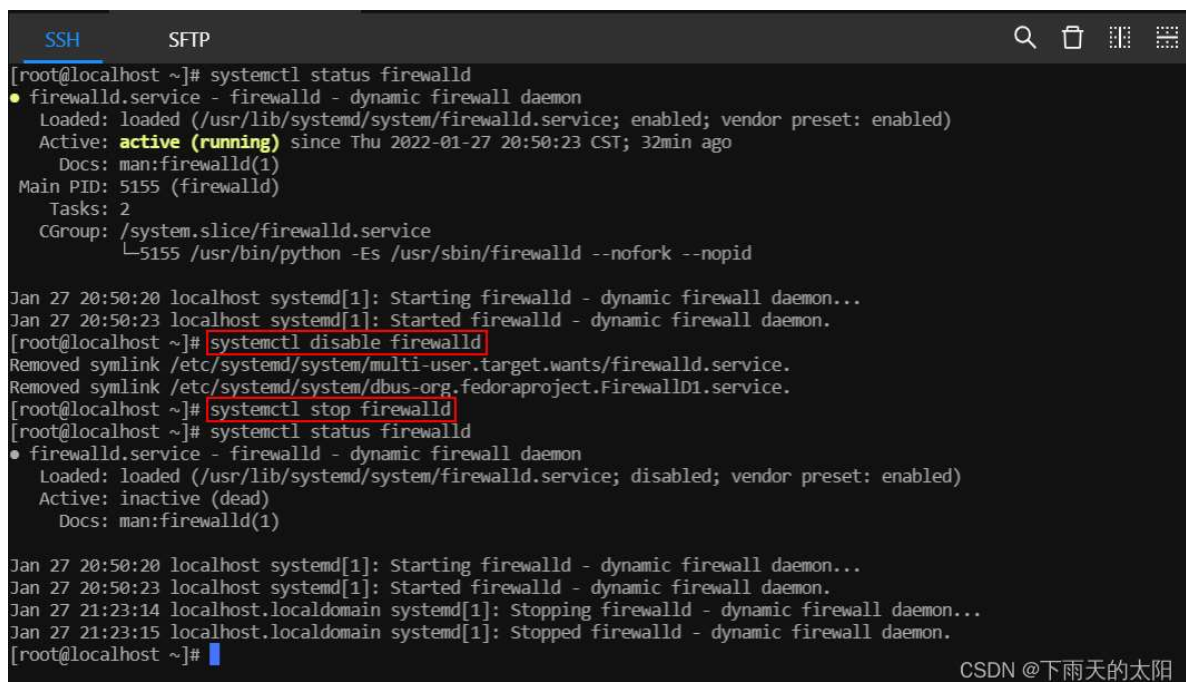
前言

oracle19c数据库安装相对于[oracle12c安装](#)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
```



```
SSH SFTP
[root@localhost ~]# systemctl status firewalld
● firewalld.service - firewalld - dynamic firewall daemon
   loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2022-01-27 20:50:23 CST; 32min ago
     Docs: man:firewalld(1)
   Main PID: 5155 (firewalld)
      Tasks: 2
    CGroup: /system.slice/firewalld.service
            └─5155 /usr/bin/python -Es /usr/sbin/firewalld --nofork --nopid

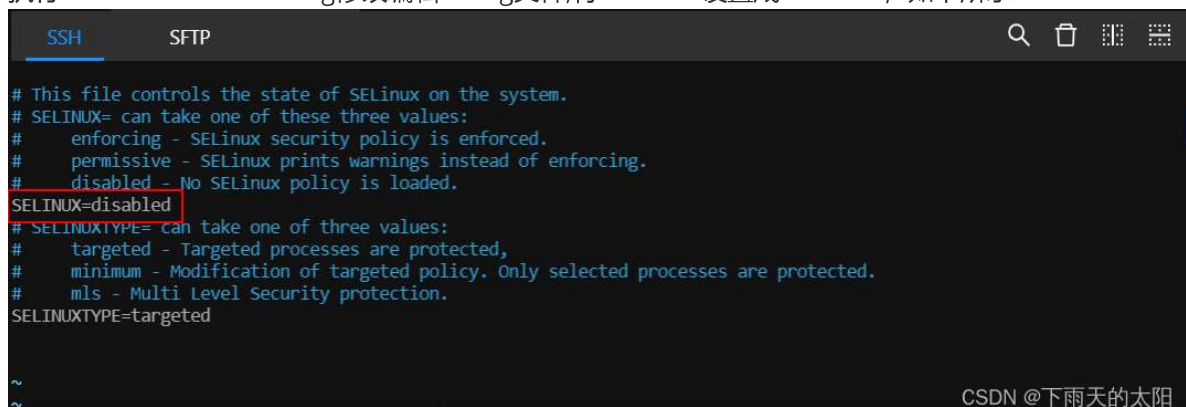
Jan 27 20:50:20 localhost systemd[1]: Starting firewalld - dynamic firewall daemon...
Jan 27 20:50:23 localhost systemd[1]: Started firewalld - dynamic firewall daemon.
[root@localhost ~]# systemctl disable firewalld
Removed symlink /etc/systemd/system/multi-user.target.wants/firewalld.service.
Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.
[root@localhost ~]# systemctl stop firewalld
[root@localhost ~]# systemctl status firewalld
● firewalld.service - firewalld - dynamic firewall daemon
   loaded: loaded (/usr/lib/systemd/system/firewalld.service; disabled; vendor preset: enabled)
   Active: inactive (dead)
     Docs: man:firewalld(1)

Jan 27 20:50:20 localhost systemd[1]: Starting firewalld - dynamic firewall daemon...
Jan 27 20:50:23 localhost systemd[1]: Started firewalld - dynamic firewall daemon.
Jan 27 21:23:14 localhost.localdomain systemd[1]: Stopping firewalld - dynamic firewall daemon...
Jan 27 21:23:15 localhost.localdomain systemd[1]: Stopped firewalld - dynamic firewall daemon.
[root@localhost ~]#
```

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(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



```
SSH SFTP
# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#   enforcing - SELinux security policy is enforced.
#   permissive - SELinux prints warnings instead of enforcing.
#   disabled - No SELinux policy is loaded.
SELINUX=disabled
# SELINUXTYPE= can take one of three values:
#   targeted - Targeted processes are protected,
#   minimum - Modification of targeted policy. Only selected processes are protected.
#   mls - Multi Level Security protection.
SELINUXTYPE=targeted

~
```

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(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

```
SSH SFTP
localhost
HOSTNAME=jamysong
~
~
~
~

SSH SFTP
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

```
SSH SFTP
[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

```
SSH SFTP
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

```
SSH SFTP
[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=orc1
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

```
[oracle@jamsong dbhome_1]$ ./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
Launching Oracle Database Setup Wizard...

[WARNING] [INS-13014] Target environment does not meet some optional requirements.
CAUSE: Some of the optional prerequisites are not met. See logs for details. installActions2022-01-27_11-59-46PM.log
ACTION: Identify the list of failed prerequisite checks from the log: installActions2022-01-27_11-59-46PM.log. Then either from the log file or from installation manual find the appropriate configuration to meet the prerequisites and fix it manually.
The response file for this session can be found at:
/u01/app/oracle/product/19.3.0/dbhome_1/install/response/db_2022-01-27_11-59-46PM.rsp

You can find the log of this install session at:
/tmp/InstallActions2022-01-27_11-59-46PM/installActions2022-01-27_11-59-46PM.log

As a root user, execute the following script(s):
  1. /u01/app/orainventory/orainstRoot.sh
  2. /u01/app/oracle/product/19.3.0/dbhome_1/root.sh

Execute /u01/app/orainventory/orainstRoot.sh on the following nodes:
[jamsong]
Execute /u01/app/oracle/product/19.3.0/dbhome_1/root.sh on the following nodes:
[jamsong]

Successfully Setup Software with warning(s).
Moved the install session logs to:
/u01/app/orainventory/logs/InstallActions2022-01-27_11-59-46PM
[oracle@jamsong dbhome_1]$
```

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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
```

```
SSH SFTP
[oracle@jamsong dbhome_1]$ su root
Password:
[root@jamsong dbhome_1]# sh /u01/app/orainventory/orainstRoot.sh
Changing permissions of /u01/app/orainventory.
Adding read,write permissions for group.
Removing read,write,execute permissions for world.

Changing groupname of /u01/app/orainventory to oinstall.
The execution of the script is complete.
[root@jamsong dbhome_1]# sh /u01/app/oracle/product/19.3.0/dbhome_1/root.sh
Check /u01/app/oracle/product/19.3.0/dbhome_1/install/root_jamsong_2022-01-28_00-04-23-653444583.log for the output of root script
[root@jamsong dbhome_1]#
```

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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@jamyson 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/jamyson/listener/alert/log.xml
Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=jamyson)(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/jamyson/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=jamyson)(PORT=1521)))
The listener supports no services
The command completed successfully
[oracle@jamyson 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@jamyson 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@jmysong 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>
```

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navicat客户端登录数据库

正在测试 - Oracle - 新建连接

常规 高级 数据库 SSH

Navicat 数据库

连接名: oracle19c

连接类型: Basic

主机: 192.168.227.75

端口: 1521

服务名: ORCL

☒ 服务名 ☐ SID

用户名: c##jamy

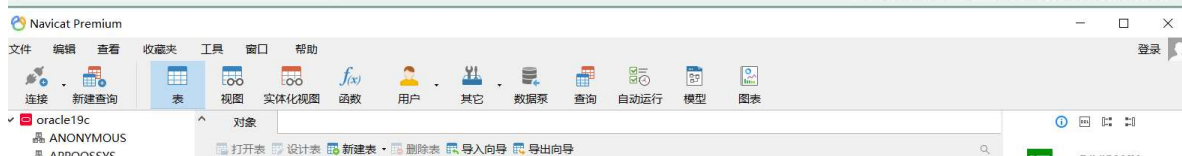
密码: ●●●●●●

☒ 保存密码

测试连接

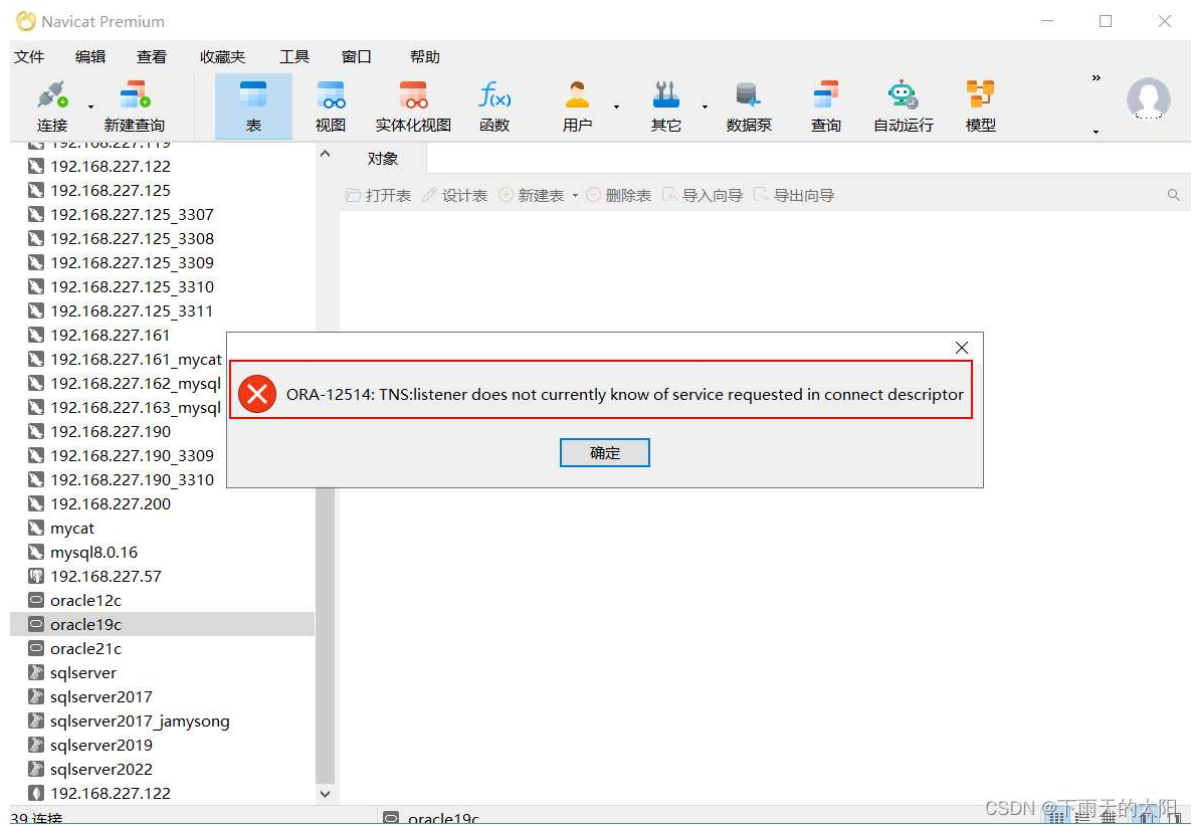
连接成功

确定





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.

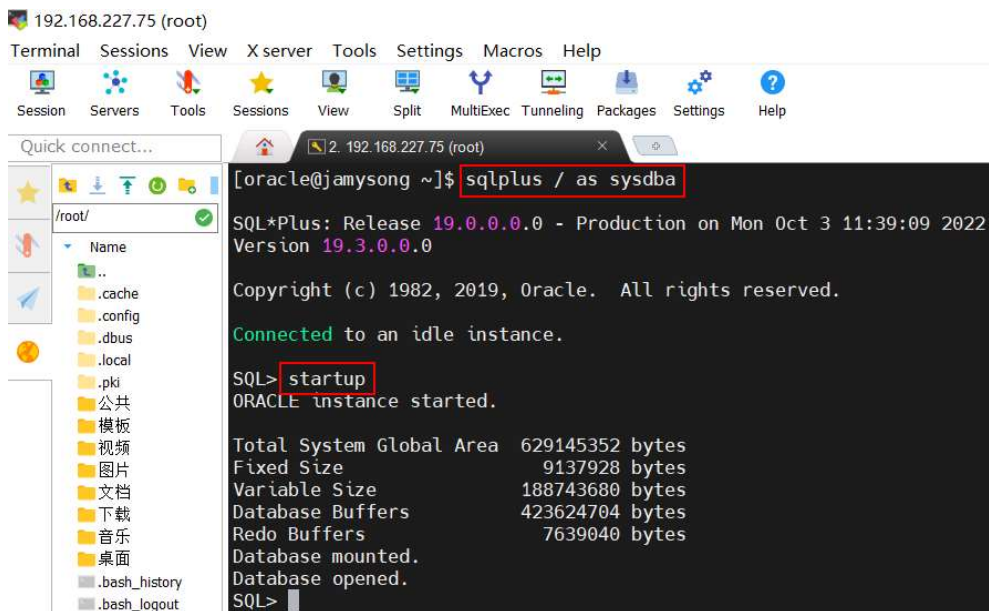
Connecting to (ADDRESS=(PROTOCOL=tcp)(HOST=)(PORT=1521))
STATUS of the LISTENER
-----
Alias                     LISTENER
Version                   TNSLSNR for Linux: Version 19.0.0.0.0 - Production
Start Date                03-OCT-2022 11:25:44
Uptime                    0 days 0 hr. 10 min. 23 sec
Trace Level               off
Security                  ON: Local OS Authentication
SNMP                      OFF
Listener Log File         /u01/app/oracle/diag/tnslnr/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 ~]$

```

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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...
/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

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

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>

```

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再次通过navicat客户端连接数据库，如下图所示可以连接了

