

## 环境准备

Linux Centos 7.4 64位，这里我用的是阿里云ECS主机（1核，1G内存，40G硬盘的配置）

Oracle 11g R2 64位安装介质（版本11.2.0.1）下载地址：

<http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html>

linux.x64\_11gR2\_database\_1of2.zip

linux.x64\_11gR2\_database\_2of2.zip

## 系统要求

内存：1G（官方最低要求1G）

硬盘：40G（企业版安装所需4.29G和1.7G数据文件）

#内存

grep MemTotal /proc/meminfo

#交换空间

##阿里云ecs默认是不提供swap分区的，这里需要自己动手加一下

#使用dd命令创建一个swap交换文件，创建一个2G的文件

dd if=/dev/zero of=/swap bs=1024 count=2048000

#制作为swap格式文件

mkswap /swap

#更改swap文件权限

chmod 600 /swap

#用swapon命令把这个文件分区挂载swap分区

swapon /swap

#查看swap空间

grep SwapTotal /proc/meminfo

#为防止重启后swap分区变为0,设置开机自动挂载

vim /etc/fstab

#在末尾追加

/swap swap swap default 0 0

#磁盘空间

df -ah

## 安装前准备

### 修改主机名称

#### #查看主机名信息

```
hostnamectl status
```

#只查看静态、瞬态或灵活主机名，分别使用“--static”，“--transient”或“--pretty”选项。

```
hostnamectl --static
```

```
hostnamectl --transient
```

```
hostnamectl --pretty
```

#同时修改所有三个主机名：静态、瞬态和灵活主机名为oradb

```
hostnamectl set-hostname oradb
```

- 在hosts中添加主机名对应记录

```
vim /etc/hosts
```

```
127.0.0.1 oradb
```

- 关闭Selinux

```
sed -i "s/SELINUX=enforcing/SELINUX=disabled/" /etc/selinux/config
```

```
setenforce 0
```

## 安装Oracle依赖包及环境配置

这里通过安装Oracle YUM 源来安装所依赖的包

```
cd /etc/yum.repos.d
```

```
wget http://public-yum.oracle.com/public-yum-ol7.repo
```

```
#导入RPM-GPG-KEY-oracle
```

```
wget http://public-yum.oracle.com/RPM-GPG-KEY-oracle-ol7 -O
```

```
/etc/pki/rpm-gpg/RPM-GPG-KEY-oracle
```

#安装oracle-rdbms-server-11gR2-preinstall快速配置Oracle安装环境

```
yum install oracle-rdbms-server-11gR2-preinstall -y
```

#oracle-rdbms-server-11gR2-preinstall包所干的事情

- (1) 自动安装oracle所需的RPM包
- (2) 自动创建oracle用户和group组
- (3) 自动配置/etc/sysctl.conf内核参数
- (4) 自动配置/etc/security/limits.conf参数
- (5) 关闭NUMA=OFF （关闭非一致内存访问）

#安装完后查看后台日志内容

```
more /var/log/oracle-rdbms-server-11gR2-preinstall/results/orakernel.log
```

```
Adding group oinstall with gid 54321
```

```
Adding group dba
```

```
Adding user oracle with user id 54321, initial login group oinstall,  
supplementary group dba and home directory /home/oracle
```

```
Changing ownership of /home/oracle to oracle:oinstall
```

```
Please set password for oracle user
```

```
uid=54321(oracle) gid=54321(oinstall) groups=54321(oinstall),54322(dba)
```

```
Creating oracle user passed
```

```
Saving a copy of the initial sysctl.conf
```

```
Verifying kernel parameters as per Oracle recommendations...
```

```
Adding fs.file-max = 6815744
```

```
Adding kernel.sem = 250 32000 100 128
```

```
Adding kernel.shmmni = 4096
```

```
Adding kernel.shmall = 1073741824
```

```
Adding kernel.shmmax = 4398046511104
```

```
Adding kernel.panic_on_oops = 1
```

```
Adding net.core.rmem_default = 262144
```

```
Adding net.core.rmem_max = 4194304
```

```
Adding net.core.wmem_default = 262144
```

```
Adding net.core.wmem_max = 1048576
```

```
Changing net.ipv4.conf.all.rp_filter to match preinstall config
```

```
net.ipv4.conf.all.rp_filter = 2
```

```
Changing net.ipv4.conf.default.rp_filter to match preinstall config
```

```
net.ipv4.conf.default.rp_filter = 2
```

```
Adding fs.aio-max-nr = 1048576
```

```
Adding net.ipv4.ip_local_port_range = 9000 65500
```

Setting kernel parameters as per oracle recommendations...

Altered file /etc/sysctl.conf

Saved a copy of the current file in /etc/sysctl.d/99-oracle-rdbms-server-11gR2-preinstall-sysctl.conf

Check /etc/sysctl.d for backups

Verifying & setting of kernel parameters passed

Setting user limits using /etc/security/limits.conf

Verifying oracle user OS limits as per Oracle recommendations...

Adding oracle soft nfile 1024

Adding oracle hard nfile 65536

Adding oracle soft nproc 16384

Adding oracle hard nproc 16384

Adding oracle soft stack 10240

Adding oracle hard stack 32768

Adding oracle hard memlock 134217728

Adding oracle soft memlock 134217728

Setting oracle user OS limits as per Oracle recommendations...

Altered file /etc/security/limits.conf

Original file backed up at /var/log/oracle-rdbms-server-11gR2-preinstall/backup/Jan-08-2018-11-18-56

Verifying & setting of user limits passed

Saving a copy of /etc/default/grub file in /etc/default/grub-initial.orabackup

Saving a copy of /etc/default/grub in /var/log/oracle-rdbms-server-11gR2-preinstall/backup/Jan-08-2018-11-18-56...

Verifying kernel boot parameters as per Oracle recommendations...

old boot params: "crashkernel=auto rhgb quiet net.ifnames=0 serial=tty0 console=ttyS0,115200n8"

new boot params: "crashkernel=auto rhgb quiet net.ifnames=0 serial=tty0 console=ttyS0,115200n8 numa=off"

old boot params: "crashkernel=auto rhgb quiet net.ifnames=0 serial=tty0

console=ttyS0,115200n8 numa=off"

new boot params: "crashkernel=auto rhgb quiet net.ifnames=0 serial=tty0

console=ttyS0,115200n8 numa=off transparent\_hugepage=never"

Setting kernel boot parameters as per Oracle recommendations...

G\_DIR=/boot/grub2

Default kernel is -> /boot/vmlinuz-3.10.0-693.2.2.el7.x86\_64

Default saved\_entry is -> CentOS Linux (3.10.0-693.2.2.el7.x86\_64) 7 (Core)

Default saved\_entry\_line is -> linux16 /boot/vmlinuz-3.10.0-

693.2.2.el7.x86\_64 root=UUID=eb448abb-3012-4d8d-bcde-94434d586a31

ro crashkernel=auto rhgb quiet net.if

names=0 serial=tty0 console=ttyS0,115200n8

Saving a copy of grubenv... in /var/log/oracle-rdbms-server-11gR2-

preinstall/backup/Jan-08-2018-11-18-56

Generating grub configuration file ...

Found linux image: /boot/vmlinuz-3.10.0-693.2.2.el7.x86\_64

Found initrd image: /boot/initramfs-3.10.0-693.2.2.el7.x86\_64.img

Found linux image: /boot/vmlinuz-3.10.0-693.el7.x86\_64

Found initrd image: /boot/initramfs-3.10.0-693.el7.x86\_64.img

Found linux image: /boot/vmlinuz-0-rescue-

f0f31005fb5a436d88e3c6cbf54e25aa

Found initrd image: /boot/initramfs-0-rescue-

f0f31005fb5a436d88e3c6cbf54e25aa.img

done

Unable to obtain the replica of saved entry line in new grub.cfg. Defaulting to first line matching the kernel

The saved kernel /boot/vmlinuz-3.10.0-693.2.2.el7.x86\_64 is now at position -

0

Boot parameters will be effected on next reboot

Altered file /etc/default/grub

Copy of the changed file is in - /etc/default/grub-oracle-rdbms-server-11gR2-preinstall.orabackup

Copy of the original file is in - /var/log/oracle-rdbms-server-11gR2-preinstall/backup/Jan-08-2018-11-18-56

Verifying & setting of boot parameters passed

Trying to add NOZEROCONF parameter...

Taking a backup of existing file to /etc/sysconfig/network.orabackup

Successfully added parameter NOZEROCONF to /etc/sysconfig/network

Setting /etc/sysconfig/network parameters passed

Disabling Transparent Hugepages.

Refer Oracle Note:1557478.1

Disabling defrag.

Refer Oracle Note:1557478.1

Taking a backup of old config files under /var/log/oracle-rdbms-server-11gR2-preinstall/backup/Jan-08-2018-11-18-56

#以上日志内容可以看到oracle-rdbms-server-11gR2-preinstall为我们做得事情

#最后可以看到备份文件的位置，是不是突然觉得世界很美好呢，什么参数、内核等等统统都配置好了

#1、创建安装的目录

```
mkdir -p /u01/oracle/product/11.2.0/db_1
```

#更改oracle目录的属主

```
chown oracle:oinstall -R /u01
```

#更改oracle目录的权限

```
chmod 755 -R /u01/oracle
```

#2、设置Oracle环境变量

```
su - oracle
```

```
vim .bash_profile
```

#追加以下内容

```
export TMP=/tmp #安装oracle软件过程中使用的临时文件目录
```

```
export TMPDIR=$TMP #安装oracle软件过程中使用的临时文件目录
```

```
export ORACLE_BASE=/u01/oracle #Oracle的BASE目录，所有关于Oracle的文件全部存放在这个目录中
```

```
export ORACLE_HOME=/u01/oracle/product/11.2.0/db_1 #安装Oracle软件存放
的目录
export ORACLE_SID=orcl #将要创建的数据库实例的名字
export ORACLE_TERM=xterm #安装的时候指定终端的定义资源文件xterm表示
窗口方式，rt100表示终端调试模式
export PATH=/usr/sbin:$PATH
export PATH=$ORACLE_HOME/bin:$PATH #SHELL可执行文件的搜索路径
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib #库文件的搜索路
径
export
CLASSPATH=$ORACLE_HOME/jre:$ORACLE_HOME/jlib:$ORACLE_HOME/rdb
ms/jlib #java的class文件执行搜索的bin路径
export EDITOR=vim #在oracle操作环境下嵌入使用的文本编辑工具
export NLS_LANG=AMERICAN_AMERICA.UTF8 #oracle用户这个客户端所识
别的字符集
export NLS_DATE_FORMAT='YYYY-MM-DD HH24:MI:SS' #oracle用户这个客
户端所识别的时间显示格式
#使环境变量生效
source .bash_profile
```

### #3、解压Oracle数据库

```
unzip linux.x64_11gR2_database_1of2.zip
unzip linux.x64_11gR2_database_2of2.zip
[oracle@oradb u01]$ ls -lrt
total 2295608
drwxr-xr-x 8 oracle oinstall    4096 Aug 21  2009 database
-rw-r--r-- 1 oracle oinstall 1239269270 Aug 21  2009
linux.x64_11gR2_database_1of2.zip
-rw-r--r-- 1 oracle oinstall 1111416131 Aug 21  2009
linux.x64_11gR2_database_2of2.zip
drwxr-xr-x 3 oracle oinstall    4096 Jan  8 13:35 oracle
#Oracle静默安装需要用到的应答文件
[oracle@oradb response]$ pwd
/u01/database/response
```

```
[oracle@oradb response]$ ll
```

```
total 76
```

```
-rw-rw-r-- 1 oracle oinstall 44969 Feb 14 2009 dbca.rsp #创建数据库应答
```

```
-rw-rw-r-- 1 oracle oinstall 22557 Aug 15 2009 db_install.rsp #安装应答
```

```
-rwxrwxr-x 1 oracle oinstall 5740 Feb 26 2009 netca.rsp #建立监听、本地服务名等网络设置的应答
```

#### #4、配置应答文件

```
[oracle@oradb response]$ cat db_install.rsp | grep -v "#" | grep -v "^$"
```

```
oracle.install.responseFileVersion=/oracle/install/rspfmt_dbinstall_response_schema_v11_2_0
```

```
oracle.install.option=INSTALL_DB_SWONLY
```

```
ORACLE_HOSTNAME=oradb
```

```
UNIX_GROUP_NAME=oinstall
```

```
INVENTORY_LOCATION=/u01/oracle/orainventory
```

```
SELECTED_LANGUAGES=en,zh_CN
```

```
ORACLE_HOME=/u01/oracle/product/11.2.0/db_1
```

```
ORACLE_BASE=/u01/oracle
```

```
oracle.install.db.InstallEdition=EE
```

```
oracle.install.db.isCustomInstall=false
```

```
oracle.install.db.customComponents=oracle.server:11.2.0.1.0,oracle.sysman.ccr:10.2.7.0.0,oracle.xdk:11.2.0.1.0,oracle.rdbms.oci:11.2.0.1.0,oracle.network:11.2.0.1.0,oracle.network.listener:11.2.0.1.0,oracle.rdbms:11.2.0.1.0,oracle.options:11.2.0.1.0,oracle.rdbms.partitioning:11.2.0.1.0,oracle.oraolap:11.2.0.1.0,oracle.rdbms.dm:11.2.0.1.0,oracle.rdbms.dv:11.2.0.1.0,oracle.rdbms.lbac:11.2.0.1.0,oracle.rdbms.rat:11.2.0.1.0
```

```
oracle.install.db.DBA_GROUP=dba
```

```
oracle.install.db.OPER_GROUP=oinstall
```

```
oracle.install.db.CLUSTER_NODES=
```

```
oracle.install.db.config.starterdb.type=GENERAL_PURPOSE
```

```
oracle.install.db.config.starterdb.globalDBName=ora11g
```

```
oracle.install.db.config.starterdb.SID=ORCL
```

```
oracle.install.db.config.starterdb.characterSet=AL32UTF8
```

```
oracle.install.db.config.starterdb.memoryOption=true
```



oracle.install.db.config.starterdb.memoryLimit=512  
oracle.install.db.config.starterdb.installExampleSchemas=false  
oracle.install.db.config.starterdb.enableSecuritySettings=true  
oracle.install.db.config.starterdb.password.ALL=oracle  
oracle.install.db.config.starterdb.password.SYS=  
oracle.install.db.config.starterdb.password.SYSTEM=  
oracle.install.db.config.starterdb.password.SYSMAN=  
oracle.install.db.config.starterdb.password.DBSNMP=  
oracle.install.db.config.starterdb.control=DB\_CONTROL  
oracle.install.db.config.starterdb.gridcontrol.gridControlServiceURL=  
oracle.install.db.config.starterdb.dbcontrol.enableEmailNotification=false  
oracle.install.db.config.starterdb.dbcontrol.emailAddress=  
oracle.install.db.config.starterdb.dbcontrol.SMTPServer=  
oracle.install.db.config.starterdb.automatedBackup.enable=false  
oracle.install.db.config.starterdb.automatedBackup.osuid=  
oracle.install.db.config.starterdb.automatedBackup.ospwd=  
oracle.install.db.config.starterdb.storageType=FILE\_SYSTEM\_STORAGE  
oracle.install.db.config.starterdb.fileSystemStorage.dataLocation=  
oracle.install.db.config.starterdb.fileSystemStorage.recoveryLocation=  
oracle.install.db.config.asm.diskGroup=  
oracle.install.db.config.asm.ASMSNMPPassword=  
MYORACLESUPPORT\_USERNAME=  
MYORACLESUPPORT\_PASSWORD=  
SECURITY\_UPDATES\_VIA\_MYORACLESUPPORT=  
DECLINE\_SECURITY\_UPDATES=true  
PROXY\_HOST=  
PROXY\_PORT=  
PROXY\_USER=  
PROXY\_PWD=

#### #5、安装数据库软件

[oracle@oradb database]\$ /u01/database/runInstaller -silent -force -  
ignorePrereq -responseFile /u01/database/response/db\_install.rsp  
Starting Oracle Universal Installer...

Checking Temp space: must be greater than 120 MB. Actual 22087 MB

Passed

Checking swap space: must be greater than 150 MB. Actual 1999 MB

Passed

Preparing to launch Oracle Universal Installer from /tmp/OraInstall2018-01-08\_02-28-33PM. Please wait ...[oracle@oradb database]\$ [WARNING] [INS-32055] The Central Inventory is located in the Oracle base.

CAUSE: The Central Inventory is located in the Oracle base.

ACTION: Oracle recommends placing this Central Inventory in a location outside the Oracle base directory.

[WARNING] [INS-32055] The Central Inventory is located in the Oracle base.

CAUSE: The Central Inventory is located in the Oracle base.

ACTION: Oracle recommends placing this Central Inventory in a location outside the Oracle base directory.

You can find the log of this install session at:

/u01/oracle/oraInventory/logs/installActions2018-01-08\_02-28-33PM.log

#等待5分钟左右出现

[oracle@oradb database]\$ The following configuration scripts need to be executed as the "root" user.

#!/bin/sh

#Root scripts to run

/u01/oracle/oraInventory/orainstRoot.sh

/u01/oracle/product/11.2.0/db\_1/root.sh

To execute the configuration scripts:

1. Open a terminal window
2. Log in as "root"
3. Run the scripts
4. Return to this window and hit "Enter" key to continue

Successfully Setup Software.

#在root用户下执行上面2个脚本

[root@oradb ~]# /u01/oracle/oraInventory/orainstRoot.sh

Changing permissions of /u01/oracle/oraInventory.

Adding read,write permissions for group.

Removing read,write,execute permissions for world.

Changing groupname of /u01/oracle/orainventory to oinstall.

The execution of the script is complete.

```
[root@oradb ~]# /u01/oracle/product/11.2.0/db_1/root.sh
```

Check /u01/oracle/product/11.2.0/db\_1/install/root\_oradb\_2018-01-08\_14-36-51.log for the output of root script

#到这里Oracle软件就安装完了，下面接着安装监听程序

#### #6、安装监听

```
[oracle@oradb database]$ $ORACLE_HOME/bin/netca /silent /responseFile  
/u01/database/response/netca.rsp
```

Parsing command line arguments:

Parameter "silent" = true

Parameter "responsefile" = /u01/database/response/netca.rsp

Done parsing command line arguments.

Oracle Net Services Configuration:

Profile configuration complete.

Oracle Net Listener Startup:

Running Listener Control:

```
/u01/oracle/product/11.2.0/db_1/bin/lsnrctl start LISTENER
```

Listener Control complete.

Listener started successfully.

Listener configuration complete.

Oracle Net Services configuration successful. The exit code is 0

#启动监控程序

```
[oracle@oradb database]$ lsnrctl start
```

LSNRCTL for Linux: Version 11.2.0.1.0 - Production on 08-JAN-2018 14:40:56

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

TNS-01106: Listener using listener name LISTENER has already been started

#查看监听状态成功

```
[oracle@oradb database]$ lsnrctl status
```

LSNRCTL for Linux: Version 11.2.0.1.0 - Production on 08-JAN-2018 14:41:03

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

Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=IPC)  
(KEY=EXTPROC1521)))

STATUS of the LISTENER

-----

Alias	LISTENER
Version	TNSLSNR for Linux: Version 11.2.0.1.0 - Production
Start Date	08-JAN-2018 14:39:22
Uptime	0 days 0 hr. 1 min. 41 sec
Trace Level	off
Security	ON: Local OS Authentication
SNMP	OFF

Listener Parameter File

/u01/oracle/product/11.2.0/db\_1/network/admin/listener.ora

Listener Log File /u01/oracle/diag/tnslsnr/oradb/listener/alert/log.xml

Listening Endpoints Summary...

(DESCRIPTION=(ADDRESS=(PROTOCOL=ipc)(KEY=EXTPROC1521)))

(DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=oradb)(PORT=1521)))

The listener supports no services

The command completed successfully

#7、静默dbca建立数据库

```
[oracle@oradb response]$ vim /u01/database/response/dbca.rsp
```

GDBNAME = "orcl.oradb" #78行, 全局数据库名字 sid+hostname

SID = "orcl" #149行

CHARACTERSET = "AL32UTF8" #415行, 编码

NATIONALCHARACTERSET= "UTF8" #425行

#开始安装

```
[oracle@oradb response]$ $ORACLE_HOME/bin/dbca -silent -responseFile  
/u01/database/response/dbca.rsp
```

Enter SYS user password:

Enter SYSTEM user password:

Copying database files

1% complete

3% complete

11% complete

18% complete

26% complete

37% complete

Creating and starting Oracle instance

40% complete

45% complete

50% complete

55% complete

56% complete

60% complete

62% complete

Completing Database Creation

66% complete

70% complete

73% complete

85% complete

96% complete

100% complete

Look at the log file "/u01/oracle/cfgtoollogs/dbca/orcl/orcl.log" for further details.

#安装完成后启动数据库（一般会启动）

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

SQL\*Plus: Release 11.2.0.1.0 Production on Mon Jan 8 14:57:49 2018

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

Connected to an idle instance.

SQL> startup

ORACLE instance started.

Total System Global Area 413372416 bytes

Fixed Size 2213896 bytes

Variable Size 268437496 bytes

Database Buffers 138412032 bytes

Redo Buffers 4308992 bytes

Database mounted.

Database opened.

SQL>

SQL> select INSTANCE\_NAME,VERSION from v\$instance;

INSTANCE_NAME	VERSION
orcl	11.2.0.1.0

#监听情况

[oracle@oradb ~]\$ lsnrctl status

LSNRCTL for Linux: Version 11.2.0.1.0 - Production on 08-JAN-2018 15:01:42

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

Connecting to (DESCRIPTION=(ADDRESS=(PROTOCOL=IPC)  
(KEY=EXTPROC1521)))

STATUS of the LISTENER

```
-----
Alias                LISTENER
Version              TNSLSNR for Linux: Version 11.2.0.1.0 - Production
Start Date           08-JAN-2018 14:39:22
Uptime               0 days 0 hr. 22 min. 21 sec
Trace Level          off
Security             ON: Local OS Authentication
SNMP                 OFF
Listener Parameter File
/u01/oracle/product/11.2.0/db_1/network/admin/listener.ora
Listener Log File    /u01/oracle/diag/tnslnr/oradb/listener/alert/log.xml
Listening Endpoints Summary...
  (DESCRIPTION=(ADDRESS=(PROTOCOL=ipc)(KEY=EXTPROC1521)))
  (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=oradb)(PORT=1521)))
Services Summary...
Service "orcl.oradb" has 1 instance(s).
  Instance "orcl", status READY, has 1 handler(s) for this service...
Service "orclXDB.oradb" has 1 instance(s).
  Instance "orcl", status READY, has 1 handler(s) for this service...
The command completed successfully
#监听正常
```

以上是Oracle 11gR2 在Centos7中静默安装的全过程