

# ORACLE运维实战

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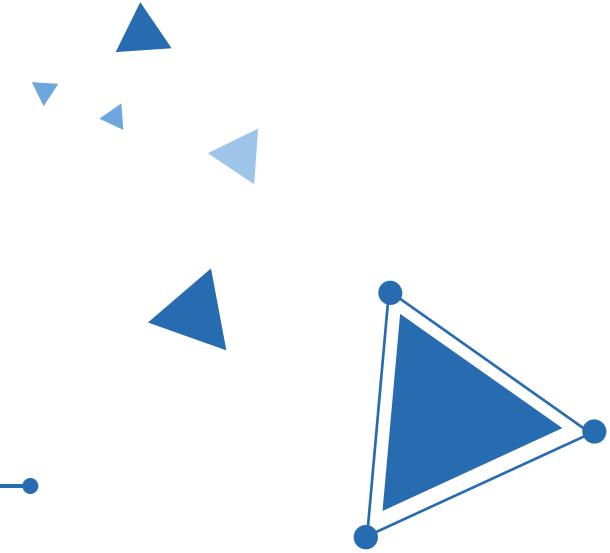
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# 01

## *Part One* Oracle连接



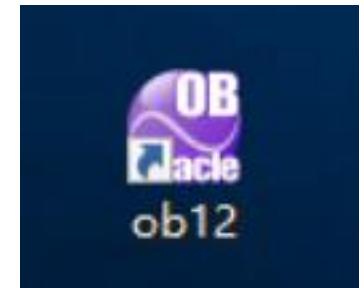
# ► Oracle连接

Oracle连接的方式：  
服务器本地连接  
客户端连接

Oracle连接的软件：  
sqlplus/sqlplusw  
PL/SQL Developer  
sqldeveloper  
TOAD  
OB等



Toad



## Oracle连接

案例一：在windows平台下sqlplus / as sysdba登陆数据库，ORA-01031

原因：权限不足

解决办法：

查看\$ORACLE\_HOME/network/admin/sqlnet.ora中SQLNET.AUTHENTICATION\_SERVICES项的配置

在windows平台上，SQLNET.AUTHENTICATION\_SERVICES必须设置为NTS或者ALL才能使用操作系统验证

SQLNET.AUTHENTICATION\_SERVICES=(NTS) --基于操作系统验证

SQLNET.AUTHENTICATION\_SERVICES=(NONE) --基于oracle验证

SQLNET.AUTHENTICATION\_SERVICES=(ALL) --二者共存

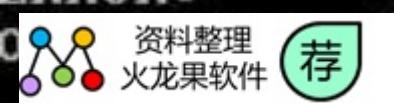
windows平台还需检查当前用户是否在ora\_dba组里

```
E:\app\Administrator\product\11.2.0\dbhome_1\dbs>sqlplus / as sysdba
```

```
SQL*Plus: Release 11.2.0.3.0 Production on 星期六 6月 8 16:34:29 2013
```

```
Copyright (c) 1982, 2011, Oracle. All rights reserved.
```

ERROR:



荐

权限不足

## ► Oracle连接

案例二：监听连接报错TNS-12560: TNS:protocol adapter error

lsnrctl start时报如下错误

TNSLSNR for Linux: Version 11.2.0.4.0 - Production

System parameter file is /oracle/product/10.2.0/db\_1/network/admin/listener.ora

Log messages written to /oracle/product/10.2.0/db\_1/log/diag/tnslsnr/unicom/listener/alert/log.xml

Listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=132.151.18.149)(PORT=1521)))

Error listening on: (DESCRIPTION=(ADDRESS=(PROTOCOL=IPC)(KEY=EXTPROC0)))

TNS-12555: TNS:permission denied

TNS-12560: TNS:protocol adapter error

TNS-00525: Insufficient privilege for operation

Linux Error: 1: Operation not permitted

原因：文件或文件夹权限错误

解决办法：

检查/tmp/.oracle 和 /var/tmp/.oracle 这2个文件夹的属组是否正确，如果不正确，  
改为 chown -R oracle:oinstall

# Oracle连接

案例三：监听连接报错ORA-12560: TNS:protocol adapter error

C:\Users\Administrator>sqlplus / as sysdba

报错

ERROR:

ORA-12560: TNS:protocol adapter error

set ORACLE\_SID=orcldg后即可成功进入

原因：

注册列表的信息不一致

解决办法：

在注册表信息中添加或修改ORALE\_SID

名称	类型	数据
ab(默认)	REG_SZ	(数值未设置)
ab MSHELP_TOOLS	REG_SZ	C:\oracle\product\10.2.0\db_1\MSHELP
ab NLS_LANG	REG_SZ	
ab OLEDB	REG_SZ	C:\oracle\product\10.2.0\db_1\oledb\msg
ab ORA_orcldg_AUTOSTART	REG_EXPAND_SZ	FALSE
ab ORA_orcldg_SHUTDOWN	REG_EXPAND_SZ	TRUE
ab ORA_orcldg_SHUTDOWN_TIMEOUT	REG_EXPAND_SZ	90
ab ORA_orcldg_SHUTDOWNTYPE	REG_EXPAND_SZ	immediate
ab ORACLE_BASE	REG_SZ	C:\oracle\product\10.2.0
ab ORACLE_BUNDLE_NAME	REG_SZ	Enterprise
ab ORACLE_GROUP_NAME	REG_SZ	Oracle - OraDb10g_home1
ab ORACLE_HOME	REG_SZ	C:\oracle\product\10.2.0\db_1
ab ORACLE_HOME_KEY	REG_SZ	SOFTWARE\ORACLE\KEY_OraDb10g_home1
ab ORACLE_HOME_NAME	REG_SZ	OraDb10g_home1
ab ORACLE_SID	REG_SZ	orcldg
ab RDBMS_ARCHIVE	REG_SZ	C:\oracle\product\10.2.0\db_1\DATABASE\ARCHIVE
ab RDBMS_CONTROL	REG_SZ	C:\oracle\product\10.2.0\db_1\DATABASE
ab SQLPATH	REG_SZ	:C:\oracle\product\10.2.0\db_1\ dbs
ab StmtCacheSize	REG_SZ	0

## ► Oracle连接

案例四：ORA-12514: TNS: 监听程序当前无法识别连接描述符中请求的服务

原因：数据库未启动

解决办法：启动数据库

## ► Oracle连接

案例五：ORA-12514: TNS: 监听程序当前无法识别连接描述符中请求的服务

非正常Oracle配置：

```
SID_LIST_LISTENER =  
(SID_LIST =  
  (SID_DESC =  
    (PROGRAM = extproc)  
    (SID_NAME = PLSExtProc)  
    (ORACLE_HOME =  
      E:\Server\oracle\product\10.2.0\db_1  
    )  
  )
```

原因：

上面已经用红色字体标示出来了，监听器配置文件中，SID列表中没有本地数据库配置。  
将数据库添加到SID列表中，重启监听器，恢复正常

正常Oracle配置

```
SID_LIST_LISTENER =  
(SID_LIST =  
  (SID_DESC =  
    (GLOBAL_DBNAME = ORCL)  
    (ORACLE_HOME =  
      E:\Server\oracle\product\10.2.0\db_1  
    (SID_NAME = ORCL)  
  )  
  (SID_DESC =  
    (PROGRAM = extproc)  
    (SID_NAME = PLSExtProc)  
    (ORACLE_HOME =  
      E:\Server\oracle\product\10.2.0\db_1  
    )  
  )
```

## 案例六：ORA-12514, TNS:listener does not currently know of service requested in connect descriptor

原因：

服务器IP地址变化

解决办法：

修改/etc/hosts，然后重启监听服务，问题解决

```
[root@DB-Server ~]# ifconfig
eth0      Link encap:Ethernet HWaddr B0:83:FE:55:32:E5
          inet addr 10.20.57.15 Bcast:10.20.57.255 Mask:
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:
          RX packets: 363981 errors:0 dropped:0 overruns:
          TX packets: 180048 errors:0 dropped:0 overruns:
          collision:0 txqueuelen:1000
          RX bytes: 225925147 (215.4 MiB) TX bytes: 14349
          Interrupt:233 Base address:0x4000

lo       Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
          UP LOOPBACK RUNNING MTU:16436 Metric:1
          RX packets: 3692 errors:0 dropped:0 overruns:0
          TX packets: 3692 errors:0 dropped:0 overruns:0
          collisions:0 txqueuelen:0
          RX bytes: 2982961 (2.8 MiB) TX bytes: 2982961

[root@DB-Server ~]# more /etc/hosts
# Do not remove the following line, or various programs
# that require network functionality will fail.
10.20.34.76      DB-Server.localdomain DB-Server
127.0.0.1          localhost.localdomain localhost
::1                localhost6.localdomain6 localhost6
```

## ► Oracle常见故障处理

案例七：客户端连接Oracle 12c的时候，报错误:ORA-28040: No matching authentication protocol

问题描述：

客户端连接Oracle 12c的时候，报错误:

ORA-28040: No matching authentication protocol

问题原因：

Oracle 12c的参数SQLNET.ALLOWED\_LOGON\_VERSION默认等于11。当我们使用11g JDBC之前版本的thin驱动连接的时候，就会报错。

解决方法：

在数据库服务器上的oracle/network/admin/sqlnet.ora文件添加一行SQLNET.ALLOWED\_LOGON\_VERSION=8，重启数据库，重新连接数据库，可以成功连接，问题解决。

## ► Oracle连接

ORACLE连接的错误的原因有很多。但无外乎这几种：

➤ ORA-12541: TNS: 没有监听器

检查服务器端的监听器是否正常启动或者数据库服务是否正常启动，另外检查客户端IP地址或端口填写是否正确。

➤ ORA-12154: TNS: 无法处理服务名

检查输入的服务名与配置的服务名是否一致。另外注意生成的本地服务名文件(Windows下如 D:oracleora92networkadmin tnsnames.ora , Linux/Unix下/network/admin/tnsnames.ora)里每项服务的首行服务名称前不能有空格。

➤ ORA-12514: TNS: 监听进程不能解析在连接描述符中给出的SERVICE\_NAME

打开Net Manager，选中服务名称，检查服务标识栏里的服务名输入是否正确。该服务名必须与服务器端监听器配置的全局数据库名一致。同时检查sqlnet.ora

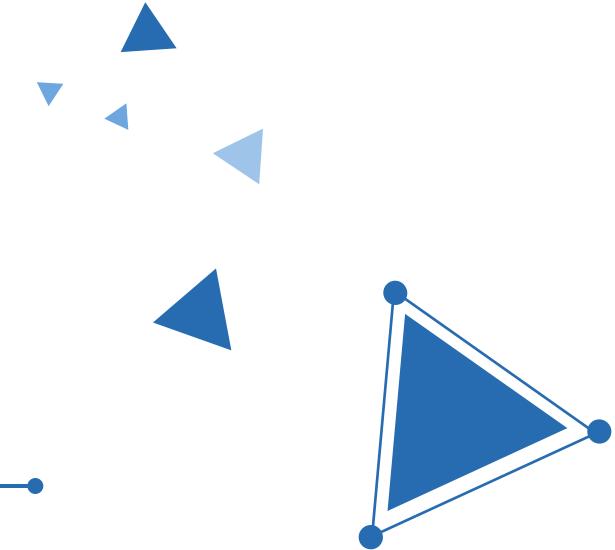
➤ Ora-12514 : TNS : 监听程序当前无法识别链接描述符中请求的服务

该问题是由于缺少监听器的SID\_LIST描述项引起的，采用netca进行配置的时候经常会遇到该问题。



# 02

## *Part Two* Oracle监控



## Onekeeper一体化监控

- 提供数据中心运行状态的实时监控，并提供可视化大屏和实时告警通知功能
- 支持数据库、中间件、操作系统、虚拟化、物理服务器、存储设备、网络设备等软硬件节点

# Oracle监控

Oracle监控配置：(Linux添加单实例Oracle)

step1:

安装snmpd服务(建议配置YUM安装)

更改snmp.conf文件，重启snmpd服务

vi /etc/snmp/snmpd.conf

添加文本

```
com2sec notConfigUser default public
group notConfigGroup v1      notConfigUser
group notConfigGroup v2c      notConfigUser
view systemview included    .1
access notConfigGroup "" any noauth exact systemview none none
```

启动snmp服务，加入开机启动项

service snmpd restart

chkconfig snmpd on

## Oracle监控配置：(Linux添加单实例Oracle)

### step2:创建Oracle数据库监控用户脚本(确认数据库监听是否打开)

```
CREATE USER "ONEKEEPER" IDENTIFIED BY "Onek11per";
grant "CONNECT" TO "ONEKEEPER";
grant select on v_$instance to "ONEKEEPER";
grant select on v_$session to "ONEKEEPER";
grant select on v_$sysstat to "ONEKEEPER";
grant select on v_$system_event to "ONEKEEPER";
grant select on v_$asm_diskgroup to "ONEKEEPER";
grant select on v_$sys_time_model to "ONEKEEPER";
grant select on v_$parameter to "ONEKEEPER";
grant select on v_$latch to "ONEKEEPER";
grant select on v_$latch_children to "ONEKEEPER";
grant select on v_$sgastat to "ONEKEEPER";
grant select on v_$resource_limit to "ONEKEEPER";
grant select on v_$datafile to "ONEKEEPER";
grant select on v_$px_session to "ONEKEEPER";
grant select on v_$dispatcher to "ONEKEEPER";
grant select on v_$shared_server to "ONEKEEPER";
grant select on v_$tablespace to "ONEKEEPER";
grant select on v_$archived_log to "ONEKEEPER";
grant select on v_$rman_status to "ONEKEEPER";
grant select on v_$memory_dynamic_components to "ONEKEEPER";
grant select on v_$log to "ONEKEEPER";
grant select on dba_alert_history to "ONEKEEPER";
grant select on dba_objects to "ONEKEEPER";
grant select on dba_users to "ONEKEEPER";
grant select on dba_jobs_running to "ONEKEEPER";
grant select on dba_sys_privs to "ONEKEEPER";
grant select on dba_tab_privs to "ONEKEEPER";
grant select on dba_tablespaces to "ONEKEEPER";
grant select on dba_data_files to "ONEKEEPER";
grant select on dba_free_space to "ONEKEEPER";
grant select on v_$archive_dest to "ONEKEEPER"
```

# Oracle监控

Oracle监控配置：(Linux添加单实例Oracle)

step3:测试OKP服务器和客户端之间SNMP协议是否正常通信

snmpwalk -v 2c -c public 10.170.24.37

```
[onekeeper@OKP201901148991 ~]$ snmpwalk -v 2c -c public 10.170.24.37
SNMPv2-MIB::sysDescr.0 = STRING: Linux qypt-db-new 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013 x86_64
SNMPv2-MIB::sysObjectID.0 = OID: NET-SNMP-MIB::netSnmpAgentOIDs.10
DISMAN-EVENT-MIB::sysUpTimeInstance = Timeticks: (87486) 0:14:34.86
SNMPv2-MIB::sysContact.0 = STRING: Root <root@localhost> (configure /etc/snmp/snmp.local.conf)
SNMPv2-MIB::sysName.0 = STRING: qypt-db-new
SNMPv2-MIB::sysLocation.0 = STRING: Unknown (edit /etc/snmp/snmpd.conf)
SNMPv2-MIB::sysORLastChange.0 = Timeticks: (27) 0:00:00.27
SNMPv2-MIB::sysORID.1 = OID: SNMP-MPD-MIB::snmpMPDMIBObjects.3.1.1
SNMPv2-MIB::sysORID.2 = OID: SNMP-USER-BASED-SM-MIB::usmMIBCompliance
SNMPv2-MIB::sysORID.3 = OID: SNMP-FRAMEWORK-MIB::snmpFrameworkMIBCompliance
SNMPv2-MIB::sysORID.4 = OID: SNMPv2-MIB::snmpMIB
SNMPv2-MIB::sysORID.5 = OID: TCP-MIB::tcpMIB
SNMPv2-MIB::sysORID.6 = OID: IP-MIB::ip
SNMPv2-MIB::sysORID.7 = OID: UDP-MIB::udpMIB
```

# Oracle监控

Oracle监控配置：(Linux添加单实例Oracle)

step4: 测试数据库是否被监控

- a. 登陆运维一体机
- b. 通过 docker ps -a 命令查看 docker 容器 id
- c. 进入 docker 容器

docker exec -it <id\_of\_okp-job-server> centos-latest bash

sample:

sudo docker exec -it 807c6db972b2 bash

d. 测试数据库连通性

/app/externalscripts/kit.orcl.dbms <ip\_of\_database\_server> <sid>

sudo docker ps -a

sudo docker exec -it adafd7592475 bash

/app/externalscripts/kit.orcl.dbms 10.170.24.205 orcl

```
[onekeeper@OKP201901148991 ~]$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND
 NAMES
6ba48d95a83f        okp-mon-screen:centos-1.0.3-beta15
okpdocker_okp-mon-screen_1
ddcef7e87f30        okp-mon-web:centos-1.0.3-beta15
tcp    okpdocker_okp-mon-web_1
418bb04bcfa9        okp-mon-agent:centos-1.0.3-beta15
okpdocker_okp-mon-agent_1
8b5aadb78204        okp-mon-server:centos-1.0.3-beta15
okpdocker_okp-mon-server_1
fbe808f8289b        okp-mon-job:centos-1.0.3-beta15
okpdocker_okp-mon-job_1
61b8507cf6ea        okp-mon-logger:centos-1.0.3-beta15
okpdocker_okp-mon-logger_1
7cb84360f321        okp-mon-java:centos-1.0.3-beta15
okpdocker_okp-mon-java_1
e34137448a88        mysql:5.7
okpdocker_okp-db_1
615ed5174ef9        okp-tool-web:2.11.0
okptooldocker_okp-tool-web_1
e95b4c79722b        okp-tool-es:2.11.0
okptooldocker_okp-tool-es_1
1bf9a3894011        okp-tool-redis:2.11.0
okptooldocker_okp-tool-redis_1
a2eec09e6c9b        okp-tool-db:2.11.0
okptooldocker_okp-tool-db_1
[onekeeper@OKP201901148991 ~]$ sudo docker exec -it fbe808f8289b bash
[root@fbe808f8289b app]# /app/externalscripts/kit.orcl.dbms 10.170.24.205 orcl
INFO 2020-02-10 01:06:26,373 --> connect check pass.
INFO 2020-02-10 01:06:26,405 --> execute check pass.
INFO 2020-02-10 01:06:26,409 success :)
[root@fbe808f8289b app]# /app/externalscripts/kit.orcl.dbms 10.170.24.37 orcl
INFO 2020-02-10 01:08:26,035 --> connect check pass.
INFO 2020-02-10 01:08:26,049 --> execute check pass.
INFO 2020-02-10 01:08:26,055 success :)
[root@fbe808f8289b app]#
```

# Oracle监控

Oracle监控配置：(Linux添加单实例Oracle)

step5:WEB页面添加主机监控项  
主机选项添加SNMP接口

The screenshot shows the 'SNMP接口' (SNMP Interface) configuration page. It has input fields for IP address (10.170.24.205), a checkbox for '使用大量请求' (Use bulk requests), and a '添加' (Add) button. Below the interface are tabs for Host, Template, IPMI, Macro, Host Assets, and Encryption. The 'Template' tab is selected.

模板选项添加ICMP,SNMP,RDBMS  
单实例数据库模版为MC-SW-DB-ORCL-RDBMS  
RAC实例模版为MC-SW-DB-ORCL-RAC  
CDB模式数据库模版为MC-SW-DB-ORCL-RDBMS-12C  
CDB模式RAC数据库模版为  
MC-SW-DB-ORCL-RDBMS-12C

链接的模板	名称	动作
	MC-SW-DB-ORCL-RDBMS	<a href="#">取消链接</a> <a href="#">取消链接并清理</a>
	MC-SW-NET-ICMP-Ping	<a href="#">取消链接</a>
	MC-SW-OS-SNMP-HPUX	<a href="#">取消链接</a>

宏选项添加  
{\$PORT}=1521  
{\$SID}=orcl  
{\$SNMP\_COMMUNITY}=public

宏	值	动作
{\$PORT}	⇒ 1521	<a href="#">移除</a>
{\$SID}	⇒ orcl	<a href="#">移除</a>
{\$SNMP_COMMUNITY}	⇒ public	<a href="#">移除</a>

# Oracle监控

Oracle监控项：

宏	可用值	模板值
{\$ASMDG.SIZE.PUSED.OK}	⇒ 90	移除
{\$ASMDG.SIZE.PUSED.WARN}	⇒ 95	移除
{\$DBFILES.PUSED.OK}	⇒ 85	移除
{\$DBFILES.PUSED.WARN}	⇒ 90	移除
{\$DTS.SIZE.PUSED.OK}	⇒ 90	移除
{\$DTS.SIZE.PUSED.WARN}	⇒ 95	移除
{\$PORT}	⇒ 1521	移除
{\$SESSIONS.PUSED.OK}	⇒ 85	移除
{\$SESSIONS.PUSED.WARN}	⇒ 90	移除
{\$SID}	⇒ 值	移除
{\$SNMP_COMMUNITY}	⇒ public	更改
{\$TX.TIME.WAITED}	⇒ 12000000	移除
{\$VERSION}	⇒ 2.0.6	移除

添加

# ► Oracle监控

Oracle告警推送：

- 邮件
- 微信
- 短信

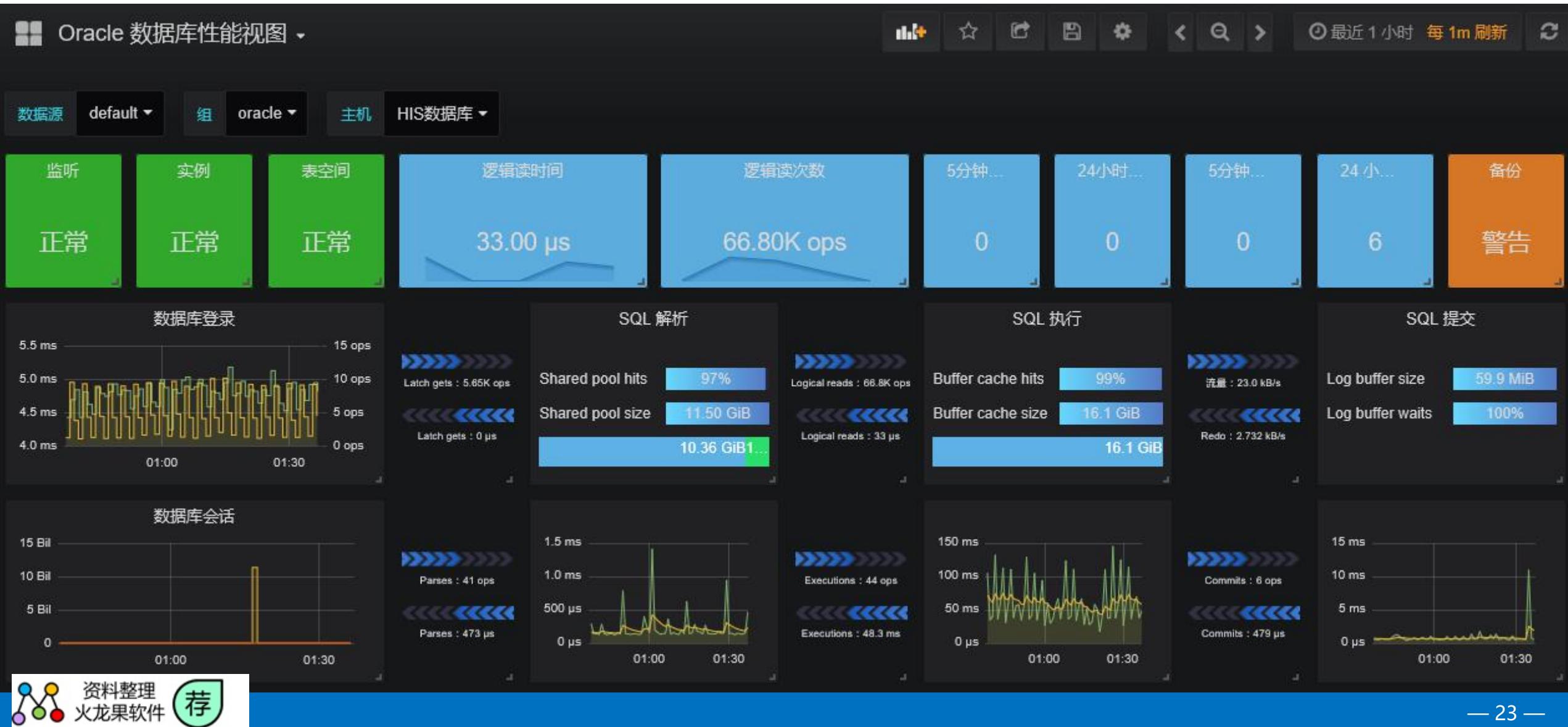


开放OneKeeper一体机外网权限

注：至少开通OneKeeper一体机到 partner.onekeeper.cn(106.14.190.40)站点 443 端口的访问权限

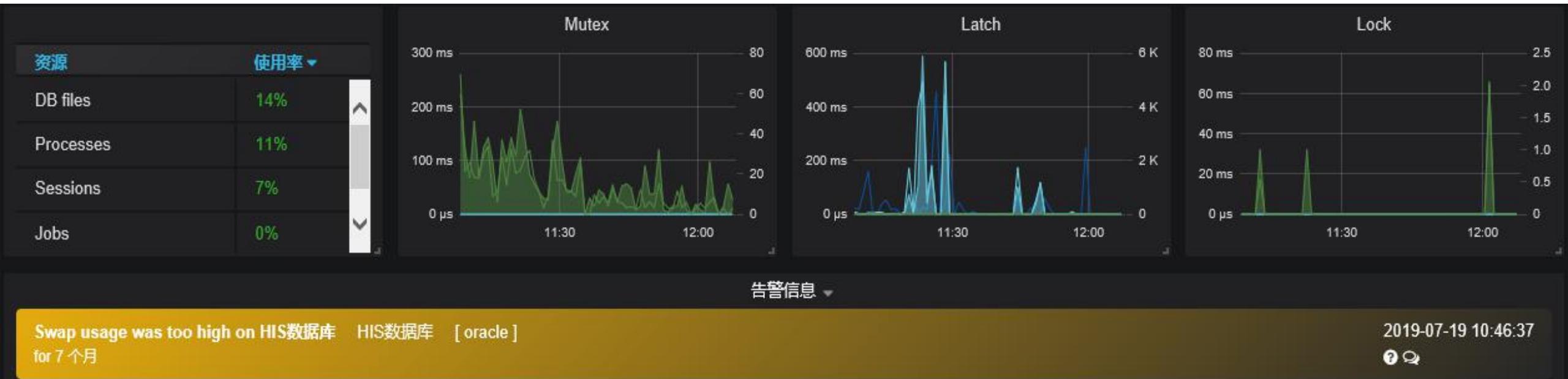
# Oracle监控

Oracle监控大屏展示：



# Oracle监控

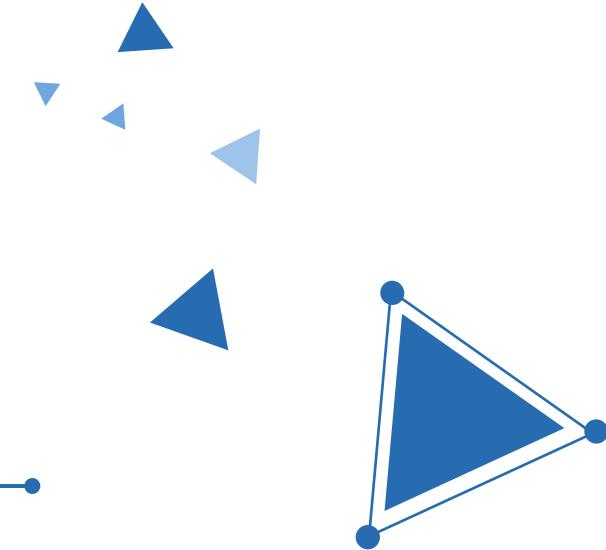
Oracle大屏展示：





# 03

## *Part Three* Oracle维护



- 一、操作系统检查
- 二、集群检查
- 三、数据库检查
- 四、备份检查
- 五、归档检查
- 六、收集AWR报告等信息
- 七、表空间检查

## 一、操作系统检查

1.操作系统资源使用情况top/topas/iostat/vmstat

重点关注CPU/内存/交换的使用情况

2.操作系统空间使用情况df -h/-g

重点关注数据库目录空间

3.操作系统告警日志

HP: cat /var/adm/syslog/syslog.log

AIX:errpt | more

LINUX: cat /var/log/messages

SUN : cat /var/log/messages

Windows:事件查看器，查看事件内容 我的电脑-右键-管理-诊断-事件查看器

4.uptime查看操作系统是否有重启过

## 二、集群检查

1. 检查集群状态 crs\_stat -t
2. 检查集群中数据库的状态 crsctl status res -t
3. 检查 service 状态，如都飘在一个检点上需要 reload 到对应节点 ( srvctl -h )  
ps -ef | grep LOCAL=NO | wc -l  
srvctl relocate service -d <db\_unique\_name> -s <service\_name> {-i <old\_inst\_name> -t <new\_inst\_name>} | -c <current\_node> -n <target\_node> } [-f]
4. 检查集群 alert 日志  
10g: \$CRS\_HOME/log/{hostname}/alert{hostname}.log  
11g: \$ORACLE\_HOME/log/{hostname}/alert{hostname}.log
5. ASM 磁盘空间是否正常  
select name, total\_mb, free\_mb from v\$asm\_diskgroup;
6. 检查磁盘状态  
select name, path, STATE, MODE\_STATUS from v\$asm\_disk;

## 三、数据库检查

1.重点表空间使用情况确保使用率在85%以内

2.资源使用情况

```
select * from v$resource_limit;
```

3.闪回使用情况

```
select flashback_on from v$database;
```

查询视图v\$recovery\_file\_dest视图来了解其位置和最大的大小

```
select * from v$recovery_file_dest;
```

使用v\$flash\_recovery\_area\_usage确定闪回恢复区中的文件使用明细

```
select * from v$flash_recovery_area_usage;
```

4.11g的新客户检查新特性是否关闭

是否开启审计show parameter audit\_trail

如开启询问是否有特许需求可以关闭

```
alter system set audit_trail=none scope=spfile sid='*';
```

```
truncate table sys.aud$;
```

5.清理监听日志

10g及10g以前 : \$ORACLE\_HOME/network/log

11g以后 : \$ORACLE\_BASE/diag/tnslsnr/{hostname}/listener/trace

## 四、备份检查

1.确定是否存在逻辑或物理备份并查看备份情况（需检查备份日志）

2.如存在dbra或dg需检查同步情况

切日志，查看备库是否应用正常

select THREAD#,max(sequence#) from v\$archived\_log group by thread#; 主机

select THREAD#,max(sequence#) from v\$archived\_log where applied='YES' group by thread#; 备库

select THREAD#,max(sequence#) from v\$archived\_log group by thread#; 备库

备机空间检查

3.ogg同步情况检查

```
[oracle@localhost odc12]$ ps -ef | grep mgr  
./ggsci  
info all  
ggserr.log
```

## 五、归档检查

查看归档目录和归档日志保存时间（一般超过7天就要询问下）

## 六、收集AWR报告等信息

获取AWR报告

```
SQL>@?/rdbms/admin/awrrpt.sql
```

询问客户高峰期时间点，截图1-2小时的报告

查看当前的 AWR 保存策略

```
select * from dba_hist_wr_control;
```

```
select snap_interval,retention from dba_hist_wr_control;
```

修改 AWR 保存时间和策略

如将收集间隔时间改为 30 分钟一次。并且保留 5 天时间（注：单位都是为分钟）

```
exec dbms_workload_repository.modify_snapshot_settings(interval=>30,retention=>5*24*60);
```

## 七、表空间检查

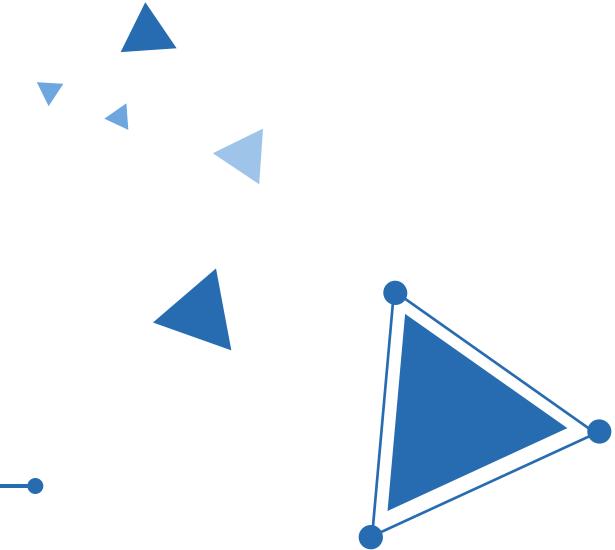
```
select tpsname ,status ,mgr , maxsize ,c_userd ,max_used from
(
SELECT d.tablespace_name tpsname,d.status status,
d.segment_space_management mgr, d.contents type,
TO_CHAR(NVL(trunc(A.maxbytes / 1024 / 1024), 0),'99G999G990') maxsize,
TO_CHAR(NVL((a.bytes - NVL(f.bytes, 0)) / a.bytes * 100, 0),'990D00') c_userd,
TO_CHAR(NVL((a.bytes - NVL(f.bytes, 0)) / a.maxbytes * 100, 0),'990D00') max_used
FROM sys.dba_tablespaces d,
(SELECT tablespace_name,sum(bytes) bytes,SUM(case autoextensible when 'NO' then BYTES when 'YES' then MAXBYTES
else null end ) maxbytes
FROM dba_data_files GROUP BY tablespace_name) a,
(SELECT tablespace_name,SUM(bytes) bytes, MAX(bytes) largest_free FROM dba_free_space GROUP BY
tablespace_name) f
WHERE d.tablespace_name = a.tablespace_name AND d.tablespace_name = f.tablespace_name(+)
)
where max_used>0
order by max_used desc;
```



# 04

*Part Four*

## Oracle常见故障处理



# ► Oracle常见故障处理

案例一：打开归档

单机环境：

```
alter system set log_archive_dest_1='location=/u01/app/archlog' scope =both;  
shutdown immediate;  
startup mount;  
alter database noarchivelog ;  
alter database open;
```

RAC环境：

```
alter system set log_archive_dest_1='location=+DATA/ARCHIVELOG' scope =both sid='*';  
shutdown immediate;(RAC中的所有实例)  
startup mount;  
alter database archivelog ;  
alter database open;
```

## ► Oracle常见故障处理

案例二：Linux下oracle设置开机启动：

1.在root账号下使用命令vi /etc/oratab编辑文件/etc/oratab，把N修改成Y

```
vi /etc/oratab
```

```
demo:/oracle/app/product/11.2.0/db_1:Y
```

2.在oracle账号下，cd \$ORACLE\_HOME/bin，编辑dbstart文件，把ORACLE\_HOME\_LISTNER=\$1，修改成  
ORACLE\_HOME\_LISTNER=\$ORACLE\_HOME

```
[oracle@demo bin]$ pwd
```

```
/oracle/app/product/11.2.0/db_1/bin
```

```
[oracle@demo bin]$ vi dbstart
```

3.在oracle账号下，cd \$ORACLE\_HOME/bin，编辑dbshut文件，把ORACLE\_HOME\_LISTNER=\$1，修改成  
ORACLE\_HOME\_LISTNER=\$ORACLE\_HOME

```
[oracle@demo bin]$ vi dbshut
```

4.切换到root账号下vi /etc/rc.d/rc.local

```
[root@demo ~]# vi /etc/rc.d/rc.local
```

```
su oracle -l "/oracle/app/product/11.2.0/db_1/bin/lsnrctl start"
```

```
su oracle -l "/oracle/app/product/11.2.0/db_1/bin/dbstart"
```

# Oracle常见故障处理

## 案例三：checkpoint not complete

解决办法：调整redo日志大小和组数

添加日志组，查看日志组大小，成员及状态

sqlplus / as sysdba

```
alter database add logfile group 4 '/oracle/app/oradata/orcl/redo04.log' size 100m;
```

```
alter database add logfile group 5 '/oracle/app/oradata/orcl/redo05.log' size 100m;
```

```
alter database add logfile group 6 '/oracle/app/oradata/orcl/redo06.log' size 100m;
```

```
select GROUP#,BYTES,MEMBERS,STATUS from v$log;
```

```
alter system switch logfile;
```

```
select GROUP#,BYTES,MEMBERS,STATUS from v$log;
```

```
alter system checkpoint;
```

删除日志组

```
alter database drop logfile GROUP 1;
```

```
alter database drop logfile GROUP 2;
```

```
alter database drop logfile GROUP 3;
```

```
Current log# 2 seq# 9410 mem# 0: /home/oracle/oradata/redo02.log
Thread 1 advanced to log sequence 9411 (LGWR switch)
Current log# 3 seq# 9411 mem# 0: /home/oracle/oradata/redo03.log
Thread 1 cannot allocate new log, sequence 9412
Checkpoint not complete
Current log# 3 seq# 9411 mem# 0: /home/oracle/oradata/redo03.log
Thread 1 advanced to log sequence 9412 (LGWR switch)
Current log# 1 seq# 9412 mem# 0: /home/oracle/oradata/redo01.log
Thu Feb 20 09:58:47 2020
Thread 1 cannot allocate new log, sequence 9413
Checkpoint not complete
Current log# 1 seq# 9412 mem# 0: /home/oracle/oradata/redo01.log
Thread 1 advanced to log sequence 9413 (LGWR switch)
Current log# 2 seq# 9413 mem# 0: /home/oracle/oradata/redo02.log
Thread 1 cannot allocate new log, sequence 9414
Checkpoint not complete
Current log# 2 seq# 9413 mem# 0: /home/oracle/oradata/redo02.log
Thread 1 advanced to log sequence 9414 (LGWR switch)
Current log# 3 seq# 9414 mem# 0: /home/oracle/oradata/redo03.log
Thu Feb 20 09:58:58 2020
Thread 1 cannot allocate new log, sequence 9415
Checkpoint not complete
Current log# 3 seq# 9414 mem# 0: /home/oracle/oradata/redo03.log
Thread 1 advanced to log sequence 9415 (LGWR switch)
Current log# 1 seq# 9415 mem# 0: /home/oracle/oradata/redo01.log
Thread 1 cannot allocate new log, sequence 9416
Checkpoint not complete
Current log# 1 seq# 9415 mem# 0: /home/oracle/oradata/redo01.log
```

# ► Oracle常见故障处理

## 案例四：CHM(Cluster Health Monitor)服务未关导致crf文件无限增长将磁盘空间占满

问题处理：

既然知道了问题的原因，那么下一步就是问题的处理；

该问题的处理，有两个办法：

- 1、删除过大的crf文件，并且关闭ora.crf。（我们采用的是第一种方法。）
- 2、删除过大的crf文件，并且应用Patch 10165314进行修复。

问题处理过程：

1、查看ora.crf服务

```
#su - grid -c "crsctl stat res ora.crf -init"
```

```
#su - grid -c "crsctl stat res ora.crf -init -t"
```

2、停止ora.crf服务

```
#su - grid -c "crsctl stop res ora.crf -init"
```

3、删除\$ORACLE\_HOME/crf/db/\$HOMENAME/目录中所有的crf\*.bdb

```
rm -rf *.bdb
```

4、查看磁盘空间，已腾出。

```
df -h
```

# ► Oracle常见故障处理

案例五：ORA-00059:maximum number of DB\_FILES exceed

原因：init parameters 里的db\_files超出限制

解决办法：

```
show parameter db_files;  
alter system set db_files=更大的值 scope=spfile;  
shutdown immediate;  
startup;
```

# ► Oracle常见故障处理

案例六：数据文件状态为recover处理办法

查询表时报错：

ORA-00376: file 9 cannot be read at this time

ORA-01110: data file 9: '+ILN\_DATA/ilndb/datafile/ilearn\_idx1.dbf'

查询该数据文件状态：

```
SQL> select FILE_NAME,ONLINE_STATUS from dba_data_files where file_id='147';
```

```
FILE_NAME
```

```
-----
```

```
ONLINE_
```

```
-----
```

```
+NDATA/zjhorcl/datafile/wdrc.dbf
```

```
RECOVER
```

recover数据文件：

Rman target /

recover datafile 147;

Sqlplus / as sysdba

ALTER DATABASE DATAFILE 147 online;

# Oracle常见故障处理

案例七：误删表恢复

## 方法1：通过flash闪回恢复误删除的数据

1、设置时间输出格式：

```
alter session set nls_date_format = 'yyyy-mm-dd hh24:mi:ss';
```

2、查询hzmc表dm操作最后的时间：

```
select max(ora_rowscn),to_char(scn_to_timestamp(max(ora_rowscn)),'yyyy-mm-dd hh24:mi:ss') from hzmc;  
MAX(ORA_ROWSCN) TO_CHAR(SCN_TO_TIMESTAMP(MAX(ORA_ROWSCN)),'YYYY-MM-DDHH24
```

```
-----  
1760891 2018-10-26 17:11:42
```

3、开启行迁移：

```
alter table hzmc enable row movement;
```

4、把表还原到指定时间点：

```
flashback table hzmc to timestamp to_timestamp('2018-10-26 17:11:42','yyyy-mm-dd hh24:mi:ss');
```

5、关闭行移动功能：

```
alter table hzmc disable row movement;
```

6、数据已恢复：

```
select * from hzmc;
```

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# Oracle常见故障处理

## 方法2：利用oracle快照进行查找某个事件节点的数据

1、设置时间输出格式：

```
alter session set nls_date_format = 'yyyy-mm-dd hh24:mi:ss';
```

2、查询hzmc表dml操作最后的时间：

```
select max(ora_rowscn),to_char(scn_to_timestamp(max(ora_rowscn)),'yyyy-mm-dd hh24:mi:ss') from hzmc;
```

```
MAX(ORA_ROWSCN) TO_CHAR(SCN_TO_TIMESTAMP(MAX(ORA_ROWSCN)),'YYYY-MM-DDHH24
```

---

```
1785209 2018-10-29 09:46:00
```

3、查询指定时间段的数据，再把查询到的数据复制到原来的表中

```
select * from hzmc as of timestamp to_timestamp('2018-10-29 09:46:00','YYYY-MM-DD HH24:MI:SS');
```

# Oracle常见故障处理

## 方法3：通过scn号来恢复

1、设置时间输出格式：

```
alter session set nls_date_format = 'yyyy-mm-dd hh24:mi:ss';
```

2、查询hzmc表dml操作最后的时间：

```
select max(ora_rowscn),to_char(scn_to_timestamp(max(ora_rowscn)), 'yyyy-mm-dd hh24:mi:ss') from hzmc;
```

```
MAX(ORA_ROWSCN) TO_CHAR(SCN_TO_TIMESTAMP(MAX(ORA_ROWSCN)),'YYYY-MM-DDHH24
```

---

```
1787749 2018-10-29 10:47:33
```

3、查询这个时间点的scn号

```
select timestamp_to_scn(to_timestamp('2018-10-29 10:47:33','YYYY-MM-DD HH:MI:SS')) from dual;
```

```
TIMESTAMP_TO_SCN(TO_TIMESTAMP('2018-10-29 10:47:33','YYYY-MM-DDHH:MI:SS'))
```

---

```
1787748
```

4、查询出该scn号的数据，进行插入

```
select * from hzmc as of scn 1787748;
```

# Oracle常见故障处理

## 方法4：通过回收站进行恢复

1、查看该用户下表的状态：

```
select table_name,dropped from user_tables;
```

TABLE_NAME	DROPPED
HZMC	NO

2、删除表today：drop table hzmc;

3、查看回收站内的表，找到被删掉表

```
select object_name,original_name,type,droptime from user_recyclebin;
```

OBJECT_NAME	ORIGINAL_NAME	TYPE	DROPTIME
BIN\$oBgUfXlinvDgU3HAqMCGQg==\$0	HZMC	TABLE	2020-03-05:03:11:11

4、恢复表：

```
flashback table hzmc to before drop; 或
```

```
flashback table "BIN$oBgUfXlinvDgU3HAqMCGQg==$0" to before drop rename to test;
```

5、查看被删除的表，已恢复成功

```
select * from hzmc;
```

## ► Oracle常见故障处理

案例八：ORA-01110: data file 5: '/u01/app/oracle/product/10.2.0/db\_1/dbs/UNNAMED00005'

解决办法：

```
alter system set standby_file_management=manual;
```

```
alter database create datafile  
'/u01/app/oracle/product/10.2.0/db_1/dbs/UNNAMED00005' as '/oracle/app/oradata/orcl/test01.dbf';
```

```
alter system set standby_file_management=auto scope=both;
```

```
alter database recover managed standby database disconnect from session;
```

# Oracle常见故障处理

## 案例九：死锁处理

解决办法：

```
set line 200
col user_name format a10
col owner format a10
col object_name format a15
col sid format 99999
col serial# format 999999
col spid format a6
select /*+ rule */ lpad(' ', decode(l.xidusn, 0, 3, 0)) || l.oracle_username user_name,
o.owner, o.object_name, o.object_type, s.sid, s.serial#, p.spid, s.event
from v$locked_object l, dba_objects o, v$session s, v$process p
where l.object_id = o.object_id and l.session_id = s.sid and s.paddr = p.addr
order by o.object_id, xidusn desc;

alter system kill session 'sid,serial#' immediate;
```

# Oracle常见故障处理

案例十：ORA-30036 无法按8扩展段  
ORA-01555 快照过旧

原因：  
UNDO表空间所包含数据文件写满

解决办法：  
增加UNDO表空间数据文件  
调整UNDO\_RETENTION参数的值



# Oracle常见故障处理

## 案例十一：关闭审计表

解决办法：

```
select action_name,count(*) from dba_audit_trail group by action_name;
```

```
SELECT *
FROM (SELECT SEGMENT_NAME, SUM(BYTES) / 1024 / 1024 /1024 GB
      FROM DBA_SEGMENTS
     WHERE TABLESPACE_NAME = 'SYSTEM'
   GROUP BY SEGMENT_NAME
  ORDER BY 2 DESC)
 WHERE ROWNUM < 10;
```

```
show parameter audit_trail
```

```
alter system set audit_trail=none scope=spfile sid='*';
truncate table sys.aud$;
```

建议：可以新建一个单独的用户表空间，将sys.aud\$表移动到新建的表空间

# Oracle常见故障处理

## 案例十二：配置控制文件多路复用

```
sqlplus / as sysdba
SQL>select name from v$controlfile;
SQL>alter system set control_files='/oracle/app/oradata/orcl/control01.ctl','/oracle/app/oradata/orcl/control02.ctl',
'/oracle/app/oradata/orcl/control03.ctl' scope=spfile;
SQL>shutdown immediate
SQL>!cp /oracle/app/oradata/orcl/control01.ctl /oracle/app/oradata/orcl/control03.ctl
SQL>startup
```

# Oracle常见故障处理

## 案例十三：收集统计信息

```
select TABLE_NAME,STATUS,LAST_ANALYZED from user_tables order by LAST_ANALYZED;
```

收集单表统计信息：

```
execute dbms_stats.gather_table_stats('SCOTT', 'TEST', cascade=>true, degree=>8);
```

收集用户统计信息：

```
exec dbms_stats.gather_schema_stats('SCOTT');
```

# Oracle常见故障处理

## 案例十四：索引

启用索引监控

```
select 'alter index ' || index_name || ' monitoring usage;' from user_indexes;
```

禁用索引监控

```
select 'alter index ' || index_name || ' nomonitoring usage;' from user_indexes;
```

创建索引

```
create index <index_name> on <table_name>(<column_name>) [tablespace<tablespace_name>];
```

重建索引

```
alter index index_name rebuild tablespace idx_tps;
```

删除索引

```
drop index index_name;
```