

Oracle8i

8.1.5

1999 2

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ORACLE®

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Oracle8i Application Developer's Guide - Fundamentals .

Oracle8i 가 1 Oracle .

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19 “ DBMS_REPAIR ”

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25 “ ”

SEGMENTS

ROLLBACK_

SQL

SQL

SQL

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SQL

, CREATE TABLE
CREATE

CREATE TABLE

, Oracle

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                가      SQL
                , CREATE TABLE
table          EMP
(
                )

```

| | | | | |
|----------------|------|-------|-------|---|
| table | | | | emp |
| ' text ' | | | | ' Employee Records ' |
| condition | TRUE | FALSE | 가 | ename > ' A ' |
| date | | DATE | | TO_DATE(d ' 01-Jan-1996 ', ' DD-MON-YYYY ') |
| expr | | | | sal + 1000 |
| integer | | | | 72 |
| rowid | | ROWID | | 00000462.0001.0001 |
| subquery | CT | SQL | SELE- | SELECT ename FROM emp |
| statement_name | CT | SQL | SELE- | s1 |
| block_name | CT | | | b10 |

SQL SQL*Plus

```
INSERT INTO emp (empno, ename) VALUES (1000, 'JFEE');
```

```
ALTER TABLESPACE users ADD DATAFILE 'users2.ora' SIZE 50K;
```

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Oracle SQL



Oracle

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Net8
: Oracle8i Distributed Database Systems “Network Administration”

Oracle

DBA

Oracle
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Enterprise Manager

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Enterprise Manager

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OSOPER OSDBA

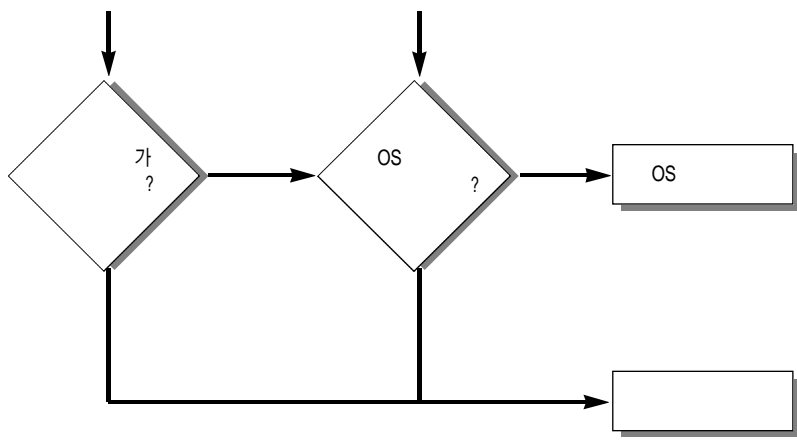
CONNECT INTERNAL .

Oracle

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1-1



OS OS (UNIX OS DBA)

: Oracle8i

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1. 가
2. REMOTE_LOGIN_PASSWORDFILE NONE
- 3.

CONNECT / AS SYSOPER

CONNECT / AS SYSDBA

Oracle INTERNAL 3

: OS SYSOPER SYSDBA
SYSOPER SYSDBA OS-
DBA OSOPER

OSOPER OSDBA

OSOPER OSDBA가

OSOPER STARTUP, SHUTDOWN, ALTER DATABASE OPEN/
MOUNT, ALTER DATABASE BACKUP, ARCHIVE LOG,
RECOVER RESTRICTED SESSION 가

OSDBA ADMIN OPTION OSOPER 가
CREATE DATABASE

OSOPER OSDBA

OSOPER OSDBA

GRANT

가

REMOTE_LOGIN_PASSWORDFILE NONE
OSDBA

, Oracle

OSOPER

가

가

Net8

Net8

TCP/IP DECnet

가

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OS

1. ORAPWD

```
ORAPWD FILE=filename PASSWORD=password ENTRIES=max_users
```

2. REMOTE_LOGIN_PASSWORDFILE EXCLUSIVE

3. SQL 가

```
GRANT SYSDBA TO scott;  
GRANT SYSOPER TO scott;
```

```
SYSDBA OSDBA 가  
SYSOPER OSOPER
```

4.

```
CONNECT scott/tiger@acct.hq.com AS SYSDBA
```

ORAPWD

ORAPWD

REMOTE_LOGIN_PASSWORDFILE

가

ORAPWD

가 가 .

```
orapwd
Usage: orapwd file=<fname> password=<password> entries=<users>
where
file - name of password file (mand),
password - password for SYS and INTERNAL (mand),
entries - maximum number of distinct DBAs and OPERs (opt),
There are no spaces around the equal-to (=) character.
```

, 가 30
ACCT.PWD . SYSOPER SYSDBA
SECRET .

```
ORAPWD FILE=acct.pwd PASSWORD=secret ENTRIES=30
```

ORAPWD .

FILE

가 .

Oracle Parallel Server Oracle
가 .

:

PASSWORD

SYSOPER SYSDBA

ALTER USER

가

. INTERNAL

ENTRIES

SYSDBA SYS-

OPER

가

EXCLUSIVE

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REMOTE_LOGIN_PASSWORDFILE

REMOTE_LOGIN_PASSWORDFILE

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Enterprise Manager

. Net8

Enterprise Manager

NONE

REMOTE_LOGIN_PASSWORDFILE NONE Oracle

NONE

EXCLUSIVE

EXCLUSIVE

EXCLUSIVE SYSOPER SYSDBA가 가

가 EXCLUSIVE

SYSOPER SYSDBA 가

SHARED

SHARED

SHARED SYSDBA SYSOPER

SHARED 가 SYSDBA SYSOPER

(SYS)

DBA가

REMOTE_LOGIN_PASSWORDFILE REM-
EXCLUSIVE

가

가 SYSDBA SYSOPER 가

가 가 EXCLUSIVE

REMOTE_LOGIN_PASSWORDFILE SHARED NONE

SYSDBA SYSOPER 가

가 가

가

1.

2. REMOTE_LOGIN_PASSWORDFILE EXCLUSIVE

3. SYSDBA

CONNECT SYS/change_on_install AS SYSDBA

4.

5.

SYSDBA SYSOPER

6.

SYSDBA SYSOPER

가 SYS

OS

OS

SYSDBA SYSOPER

가 EXCLUSIVE

GRANT

SYSDBA SYSOPER

GRANT SYSDBA TO scott;

REVOKE

SYSDBA SYSOPER

REVOKE SYSDBA FROM scott;

SYSDBA SYSOPER

가

ADMIN

OPTION

SYSDBA

INTERNAL

SYSDBA SYSOPER

REVOKE

가

SYSDBA SYSOPER

SYSDBA SYSOPER

:

24 “

”

V\$PWFILERS

SYSDBA SYSOPER
V\$PWFILERS

USERNAME

SYSDBA

TRUE

SYSDBA

SYSOPER

TRUE

SYSOPER

 SYSDBA SYSOPER
 가 SYS . :

, SCOTT가 가 . :

CONNECT scott/tiger

CREATE TABLE scott_test(name VARCHAR2(20));

SCOTT가 . :

CONNECT scott/tiger AS SYSDBA

SELECT * FROM scott_test;

 SCOTT_TEST가 가 SCOTT
 SYS . :

 가 Oracle
 . :

SYSDBA SYSOPER
 . :

가

Oracle

가

SYSDBA

SYSOPER
가

: 1-9

“ ”

SYSDBA SYSOPER
(ORA-1996)가

1. V\$PWFILERS_USERS

SYSDBA SYSOPER

2.

3.

4. 1-10

“ORAPWD ”

ENTRIES

ORAPWD

5. 1-12

“ 가 ”

가

REMOTE_LOGIN_PASSWORDFILE NONE
가

: REMOTE_LOGIN_PASSWORDFILE=EXCLUSIVE
SHARED

REMOTE_LOGIN_PASSWORD
FILE

SHARED REMOTE_LOGIN_
PASSWORDFILE Oracle Oracle

: EXCLUSIVE SHARED

가 가
REMOTE_LOGIN_PASSWORDFILE

가

Oracle

가 가

SQL*Loader

Export Import

SQL*Loader

SQL*Loader

. SQL*Loader

가

C

: Oracle8i Utilities

Export Import

Oracle

Oracle

: Oracle8i Utilities

Oracle

1 :

2 :

가

3 :

4 :

5 :

6 :

7 :

8 :

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Oracle8i Migration

1 :

Oracle

가

Oracle Net8

:

1-21

“

Oracle

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Net8

2 :

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Oracle

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Oracle

Oracle

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Oracle

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3 :

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Oracle

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21

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4 :

Oracle

. Oracle

Oracle

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5 :

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21

6 :

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가

:
Guide

Oracle8i Backup and Recovery

7 :

Oracle

:

22

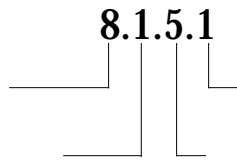
24

8 :

가

Oracle “ 8.1.5.1 ” ,

1-2 Oracle



8 가 8.0
0 가 . 가 . , 8.1 8

8.1.5

0

8.1.5.1

8.1.5.1.3

Oracle

Oracle8i

8.0.0

Oracle8i

8.1.0

Oracle8i

8.2.0

Oracle8i

()

8.2.2

Oracle8i

가
Oracle
8.1.5.1 가 Oracle Forms 4.0.3, SQL*Plus 3.1.9,
Pro*FORTRAN 1.5.2 . (

Oracle Oracle
PRODUCT_COMPONENT_VERSION
()

SELECT * FROM product_component_version;

| PRODUCT | VERSION | STATUS |
|---------|-----------|------------|
| CORE | 3.4.1.0.0 | Production |

| | | |
|-----------------|-----------|--------------|
| NLSRTL | 3.1.3.0.0 | Production |
| Oracle8i Server | 8.1.4.0.0 | Beta Release |
| PL/SQL | 2.2.1.0.0 | Beta |
| TNS for SunOS: | 2.1.4.0.0 | Production |
| 5 rows selected | | |

가

가

()

가

가

: Oracle8i National Language Support Guide

12 19

6 “ ” 7 “ ” .

Oracle

Oracle

Oracle

가

가

Oracle

Oracle

Oracle8i Migration

1.

2.

3.

4.

5. SQL*Plus Oracle SYSDBA

6.

7.

8.

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1 :

가

2 :

)

(

가

가

:

: 가
Enterprise Manager가
Enterprise Manager
Oracle

3 :

| | |
|-------------------|------|
| DB_NAME | 2-9 |
| DB_DOMAIN | 2-9 |
| CONTROL_FILES | 2-10 |
| DB_BLOCK_SIZE | 2-11 |
| DB_BLOCK_BUFFERS | 2-11 |
| PROCESSES | 2-12 |
| ROLLBACK_SEGMENTS | 2-12 |

| | |
|-------------------------|------|
| LICENSE_MAX_SESSIONS | 2-13 |
| LICENSE_SESSION_WARNING | 2-13 |
| LICENSE_MAX_USERS | 2-13 |

4 : 가 Oracle
Oracle
(DB_NAME) Oracle
가

5 : SQL*Plus Oracle SYSDBA .
SYSDBA .

\$ SQLPLUS /nolog
connect username/password as sysdba

6 : .
NOMOUNT . STARTUP

STARTUP NOMOUNT;

(SGA)

7 : . SQL CREATE DATABASE

CREATE DATABASE

SYSTEM SYSTEM

SYS SYSTEM

:

: SYSTEM
9-5 " SYSTEM
"

8 : 가

: Oracle8i Backup and Recovery Guide

3-13 “ ”

CREATE DATABASE , , Oracle8i
SQL .

:

CREATE DATABASE

```
CREATE DATABASE test
  DATAFILE 'test_system' SIZE 10M
  LOGFILE GROUP 1 ('test_log1a', 'test_log1b') SIZE 500K,
  GROUP 2 ('test_log2a', 'test_log2b') SIZE 500K;
```

MAXLOGFILES, MAXLOGMEMBERS, MAXDATAFILES,
MAXLOGHISTORY, MAXINSTANCES

가 NOARCHIVELOG
EXCLUSIVE

TEST

SYSTEM

TEST_SYSTEM

10MB

가

500KB

가

```

:
, MAXDATAFILES Oracle
MAXDATAFILES
CREATE
DATABASE
: Oracle8i
SQL

```

```

CREATE DATABASE
" : "
,
V$DATAFILE V$LOGFILE
: Oracle8i Reference

```

“ ” 3

DB_NAME DB_DOMAIN
CONTROL_FILES
DB_BLOCK_SIZE
DB_BLOCK_BUFFERS
PROCESSES
ROLLBACK_SEGMENTS

LICENSE_MAX_SESSIONS LICENSE_SESSIONS_WARNING
LICENSE_MAX_USERS

DB_NAME DB_DOMAIN

```
DB_NAME DB_DOMAIN  
(  
    . DB_NAME  
    , DB_DOMAIN  
)  
DB_DOMAIN . DB_NAME  
    , TEST.US.ACME.COM  
가
```

DB_NAME = TEST
DB_DOMAIN = US.ACME.COM

DB_NAME
DB_NAME

DB_NAME

DB_DOMAIN

가

:
Systems

Oracle8i Distributed Database

CONTROL_FILES

CONTROL_FILES
. Oracle

가

CONTROL_

FILES
Oracle
CONTROL_FILES

CREATE DATABASE

CONTROL_FILES

Oracle

CONTROL_FILES

CONTROL_FILES

7
FILES

CREATE DATABASE

CONTROL_

: CONTROL_FILES

DB_BLOCK_SIZE

Oracle
Oracle 2K 4K 가 I/O(
)
Oracle 가
4K 가
Oracle 가
가 1K I/O Oracle

DB_BLOCK_SIZE

가 가

가 2K(2048)
DB_BLOCK_SIZE

DB_BLOCK_SIZE=4096

DB_BLOCK_SIZE (SGA)

:

DB_BLOCK_BUFFERS

(SGA)

가 가

가 .
가

1000 2000 .
Oracle8i Tuning .

PROCESSES

Oracle
1 55 , 5 50

ROLLBACK_SEGMENTS

Oracle 가

: SYSTEM SYSTEM

: Oracle8i Tuning

Oracle Oracle

: 23-2 “

LICENSE_MAX_SESSIONS LICENSE_SESSIONS_WARNING

SESSIONS LICENSE_MAX_SESSIONS
LICENSE_MAX_SESSIONS = 80
LICENSE_MAX_SESSIONS
가 가
Oracle
LICENSE_SESSIONS_WARNING
LICENSE_SESSIONS_WARNING LICENSE_MAX_SESSIONS
Parallel Server
가
: Parallel Server Oracle8i
Parallel Server Concepts and Administration

LICENSE_MAX_USERS

: 가 가
가 Oracle 가
가

LICENSE_MAX_USERS
LICENSE_MAX_USERS = 200
Parallel Server
가
: Parallel Server Oracle8i
Parallel Server Concepts and Administration

가 가 가
가
Oracle 가 , SQL , 가
SQL
SYS SYSTEM,
: SYS SYSTEM 1-5 “
23-15 “ ”

Oracle
Oracle

DB_BLOCK_LRU_LATCHES
I/O

Oracle

Oracle8i Tuning

CREATE ROLLBACK SEGMENT

: CREATE ROLLBACK SEGMENT

Oracle8i SQL

SEGMENT

가

. CREATE ROLLBACK

:

Oracle8i Tuning

DB_BLOCK_LRU_LATCHES

LRU

CPU

(SMP)

. SMP

Oracle

LRU

LRU

CPU

. SMP

LRU

DB_BLOCK_LRU_LATCHES

LRU

LRU

LRU

Oracle

: LRU

Oracle8i Tuning

I/O

I/O

Oracle

I/O

. Oracle

I/O

Oracle

I/O

가

Oracle

I/O

()
: I/O Oracle8i Tuning .

가

Oracle Manager Administrator's Guide
 STARTUP SHUTDOWN
 Enterprise Manager GUI
 SQL*Plus
 Recovery
 Oracle Enterprise

- (가)
- (가)

:

가 Oracle Parallel Server

: OPS Oracle8i Parallel
 Server Concepts and Administration
 SQL*Plus SQL*Plus
 Recovery Manager Oracle8i Backup and Rec-
 overy Guide

1. SQL*Plus

sqlplus /nolog

2. SYSDBA Oracle

connect username/password as sysdba

3. STARTUP

STARTUP database_name PFILE=myinit.ora

PFILE Oracle
Oracle

DB_NAME

:

DB_NAME

Oracle8i Reference

:

: , 가

CONTROL_FILES

Oracle

Oracle

NOMOUNT

. STARTUP

STARTUP NOMOUNT;

가,

STARTUP MOUNT

STARTUP MOUNT ;

STARTUP

STARTUP ;

가

SQL*Loader

가

CREATE SESSION

RESTRICTED SESSION

SESSION

CREATE SESSION

가

RESTRICTED

STARTUP RESTRICT

,
STARTUP RESTRICT;

ALTER SYSTEM RESTRICTED SESSION
가
: ALTER SYSTEM Oracle8i SQL

가
SHUTDOWN NORMAL, SHUTDOWN IMMEDIATE SHUTDOWN
TRANSACTIONAL

가
STARTUP FORCE
,
STARTUP FORCE;

가
ABORT STARTUP FORCE

,
STARTUP RECOVER
.
STARTUP OPEN RECOVER;

가 Oracle

Oracle 가

```
STARTUP OPEN sales PFILE=INITSALE.ORA PARALLEL;
```

INITSALE.ORA

, sales

```
STARTUP OPEN sales PFILE=INITSALE.ORA EXCLUSIVE RESTRICT;
```

Oracle

Oracle 가

: 가 3-8

' " 7 " 6 "

" ABORT " 3-12

Server Concepts and Administration

Oracle8i Parallel

STARTUP
Oracle8i SQL

가

가

SQL ALTER DATABASE MOUNT

ALTER DATABASE MOUNT;

:

3-4

“

”

SQL ALTER DATABASE OPEN

ALTER DATABASE OPEN;

CREATE SESSION

Oracle

ALTER DATABASE OPEN READ ONLY;

가

ALTER DATABASE OPEN READ WRITE;

=====

: RESETLOGS READ ONLY

=====

: ALTER DATABASE

Oracle8i SQL

Oracle8i

CREATE SESSION

SESSION RESTRICTED SESSION

가

CREATE

가

RESTRICTED

SESSION

SQL*Loader

가

SQL ALTER SYSTEM ENABLE RESTRICTED SESSION

SYSTEM DISABLE RESTRICTED SESSION

. ALTER

:

3-4

“

”

ALTER SYSTEM

Oracle8i SQL

NORMAL

IMMEDIATE

TRANSACTIONAL

ABORT

SQL*Plus SHUTDOWN

가

가

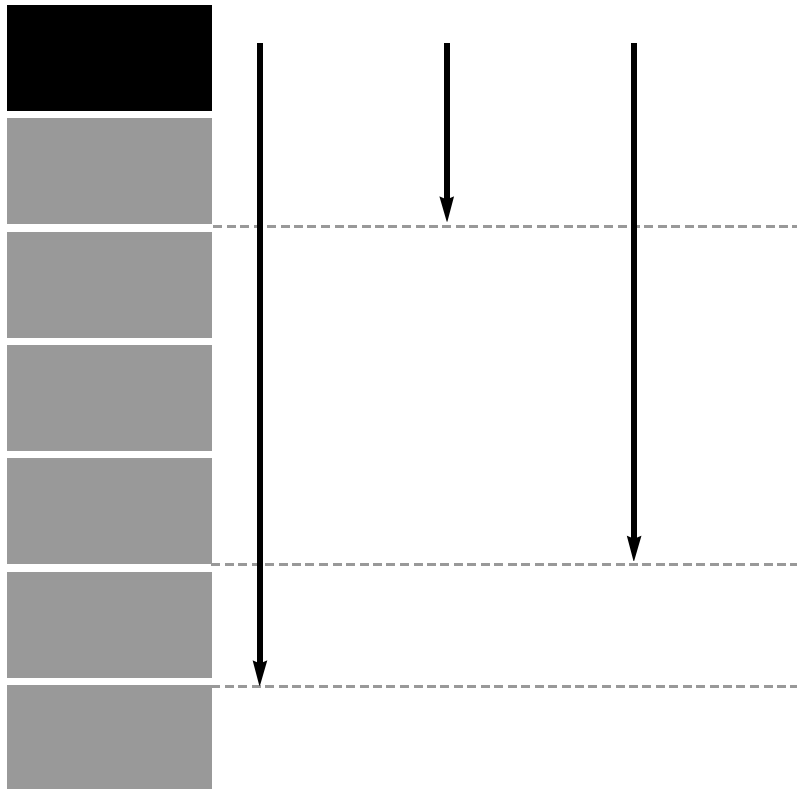
ORA-01090: shutdown in progress - connection is not permitted

:

SYSOPER SYSDBA

3-1
SHUTDOWN 가

3-1 SHUTDOWN



NORMAL

Oracle

가

가 .

SHUTDOWN NORMAL

SHUTDOWN NORMAL;

IMMEDIATE

. (.)

Oracle

가

SHUTDOWN IMMEDIATE

SHUTDOWN IMMEDIATE;

: SHUTDOWN IMMEDIATE

, ,) SHUTDOWN TRANSAC-
TIONAL 가 .

TRANSACTIONAL

SHUTDOWN TRANSACTIONAL

SHUTDOWN TRANSACTIONAL;



가

가

SHUTDOWN

IMMEDIATE

가

ABORT

(, 1

)

가

가

Oracle

SQL

Oracle

가

SHUTDOWN

ABORT

SHUTDOWN ABORT ;

ALTER SYSTEM SUSPEND

I/O(,

)

가

ALTER SYSTEM RESUME

.
/
.
/
.
/
.
SUSPEND RESUME
1, 2, 3 1 SUSPEND
1, 2, 3 RESUME
SUSPEND RESUME

1. ALTER TABLESPACE BEGIN BACKUP

2. 가 ALTER
SYSTEM SUSPEND

3.

4. ALTER SYSTEM RESUME

5. ALTER TABLESPACE END BACKUP

6.

:
SUSPEND

: ALTER SYSTEM SUSPEND/RESUME ALTER TABLESPACE
Oracle8i SQL

Oracle

INIT.ORA

INITsid.ORA

. sid

: Oracle Enterprise Manager

prise Manager Administrator's Guide

Oracle Enter-

Oracle8i

Reference

Oracle

가

(NLS)

:

INIT.ORA

INITsid.ORA

Oracle

Oracle

:

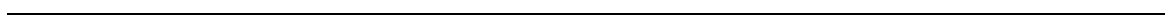
Tuning

Oracle8i

가

DB_NAME

CONTROL_FILES



Oracle

Oracle

Oracle8i Distributed

Database Systems



Oracle

Oracle

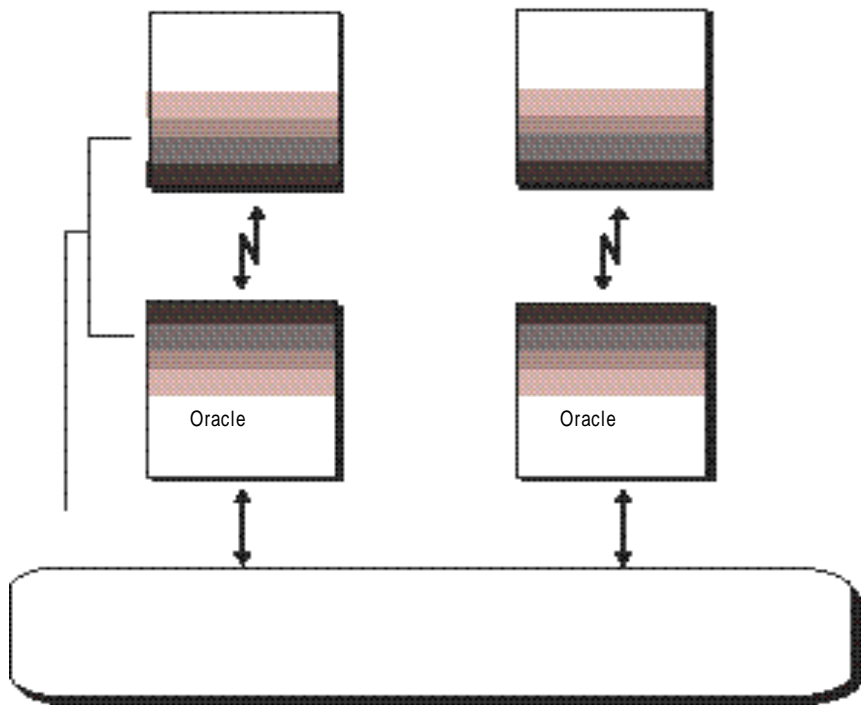
Oracle

Oracle

Oracle

가 가 ,
 가 Oracle
 . (4-1) Oracle
 Oracle

4-1 Oracle



가

(,)

Enterprise Manager ,

Recovery Manager ,

SERVER=DEDICATED

Net8 TNS

: Net8

Net8 Administrator's Guide

Oracle8i Reference

Oracle

가

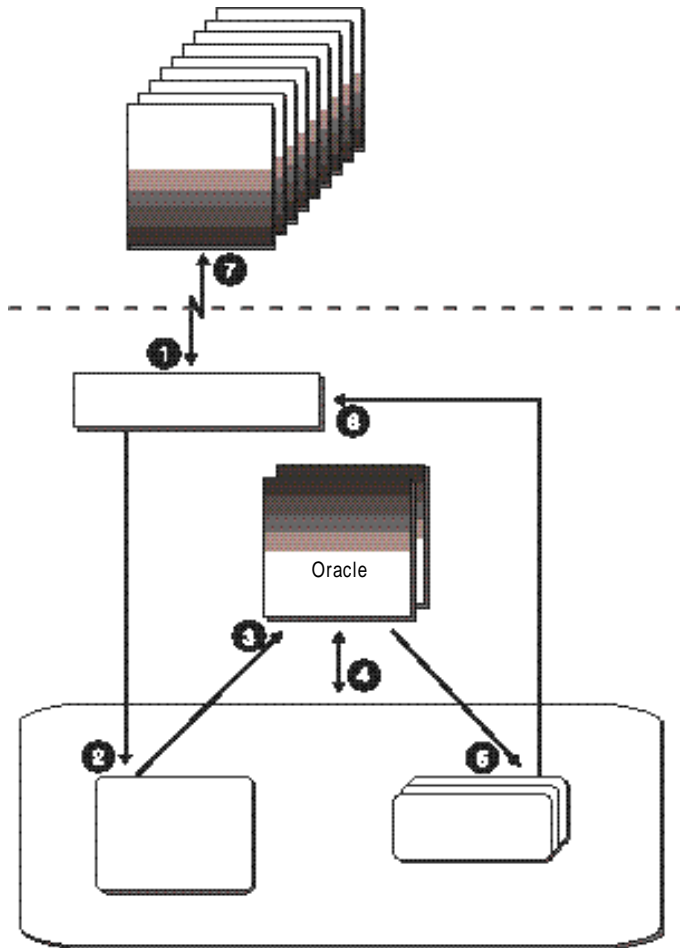
가

(4-2)

가

가

4-2 Oracle



MTS_DISPATCHERS

Net8
Oracle

Net8

Oracle8i

: Distributed Database Systems Oracle Net8 Administrator's Guide

MTS_DISPATCHERS: ()

MTS_DISPATCHERS 가

MTS_DISPATCHERS

가
()

가

: " 4-7 " 가

가

number of dispatchers = CEIL ($\frac{\text{maximum number of concurrent sessions}}{\text{connections per dispatcher}}$)

600 , 900 가 TCP/IP
SPX 255 가
MTS_DISPATCHERS

MTS_DISPATCHERS = "(PROTOCOL=TCP) (DISPATCHERS=4)"
MTS_DISPATCHERS = "(PROTOCOL=SPX) (DISPATCHERS=3)"

1 IP
 MTS_DISPATCHERS=" (ADDRESS=(PARTIAL=TRUE)(PROTOCOL=TCP)\
 (HOST=144.25.16.201))(DISPATCHERS=2)"

HOST=144.25.16.201 가
 가

2 PORT 가
 MTS_DISPATCHERS=" (ADDRESS=(PARTIAL=TRUE)(PROTOCOL=TCP)\
 (HOST=144.25.16.201)(PORT=5000))(DISPATCHERS=1)"
 MTS_DISPATCHERS=" (ADDRESS=(PARTIAL=TRUE)(PROTOCOL=TCP)\
 (HOST=144.25.16.201)(PORT=5001))(DISPATCHERS=1)"

| | | |
|------------|-----------------|---|
| : INIT.ORA | MTS_DISPATCHERS | |
| | MTS_DISPATCHERS | 1 |

가

SQL ALTER SYSTEM

Oracle 가

MTS_SERVERS 0 Oracle 가
 MTS_SERVERS 가
 MTS_SERVERS 0

ALTER SYSTEM

2

```
ALTER SYSTEM SET MTS_SERVERS = 2
```

가

```
V$DISPATCHER V$DISPATCHER_RATE V$QUEUE,
가 가
가 MTS_MAX_DISPATCHER
가
```

```
SQL ALTER SYSTEM
```

```
MTS_DISPATCHERS
가 MTS_DISPATCHERS 가
가 가
```

```
Oracle MTS_DISPATCHERS
```

```
ALTER SYSTEM
```

```
MTS_DISPATCHERS가 1 SPX
가
```

```
ALTER SYSTEM
SET MTS_DISPATCHERS = '(INDEX=1) (PRO=SPX)';
```

: Oracle8i Tuning

Oracle

```
Oracle 가
:
:
```

Oracle
 , ALERT

: Oracle Oracle8i Tuning .

Oracle

Enterprise Manager 가 4-1 Oracle

4-1 Enterprise Manager

| | |
|--|-----------|
| | |
| | Oracle |
| | Oracle ID |

4-2 가

4-2 Oracle

| | |
|--------------------|--|
| | |
| Enterprise Manager | Enterprise Manager/GUI |
| UTLLOCKT.SQL | UTLLOCKT.SQL Enterprise Manager SQL*Plus ad hoc (CATBLOCK.SQL UTLLOCKT.SQL UTLLOCKT.SQL .) |

Oracle

```

( )
V$CIRCUIT 가
V$QUEUE 가
V$DISPATCHER 가
V$DISPATCHER_RATE 가
V$SHARED_SERVER 가
V$SQLAREA SQL SQL 가
V$SESS_IO 가
V$LATCH 가
V$SYSSTAT 가

```

V\$DISPATCHER

```

SELECT (busy/(busy + idle)) * 100 "% OF TIME BUSY"
FROM v$dispatcher;

```

Oracle

Oracle

```

, TEST 가

```

ORA_TEST_DBWR
ORA_TEST_LGWR
ORA_TEST_SMON
ORA_TEST_PMON
ORA_TEST_RECO
ORA_TEST_LCK0
ORA_TEST_ARCH
ORA_TEST_D000
ORA_TEST_S000
ORA_TEST_S001

:

Oracle8i Reference

.

Oracle

, ALERT

가

Oracle WorldWide

Support

ALERT

ALERT

(ORA-60)
(ORA-60)

(ORA-600),

(ORA-1578),

CREATE/ALTER/DROP DATABASE/TABLESPACE/ROLLBACK
SEGMENT SQL STARTUP, SHUTDOWN ARCHIVE LOG

Oracle
ALERT
"completed" 가
ALERT
가 , (LGWR)
가 LGWR
가
Oracle ALERT
가 , Oracle
ALERT
Oracle
BACKGROUND_DUMP_DEST ALERT
USER_DUMP_DEST LGWR RECO
MAX_DUMP_FILE_SIZE (ALERT
)
ALERT
Oracle 가
ALERT

Oracle

SQL_TRACE가 TRUE
가

SQL_TRACE
SET SQL_TRACE

SQL

ALTER SESSION

ALTER SESSION SET SQL_TRACE TRUE;

가 ,
)

(가

SQL

:
ALTER SESSION

Oracle8i SQL

(CKPT)가

(LGWR)가

CESS

TRUE(FALSE)

가
CHECKPOINT_PRO-
CKPT

Oracle

SQL

Oracle

Oracle8i Tuning

Oracle 가
PARALLEL_MIN_SERVERS
Oracle 가

SQL Oracle

가 Oracle 가

PARALLEL_MAX_SERVERS

Oracle PARALLEL_SERVER_IDLE_TIME

Oracle
SERVERS

PARALLEL_MIN_

가

가

Oracle8i Tuning

C

가

1. (EXTPROC)
가 tnsnames.ora
2. “ ” 가 listener.ora
- 3.
4. EXTPROC
Oracle Oracle
가
“oracle” 가
5. extproc \$ORACLE_HOME/bin
(DLL)
(DLL) 가

tnsnames.ora

tnsnames.ora

```
extproc_connection_data = (DESCRIPTION =  
    (ADDRESS = (PROTOCOL=IPC  
                (KEY=extproc_key)  
            )  
    (CONNECT_DATA = (SID = extproc_agent)
```

)

extproc_connecti-

on_data

| | | |
|---------------|--------------|--------------|
| extproc_key | listener.ora | KEY |
| extproc_agent | SID | listener.ora |
| SID_NAME | | |

listener.ora

listener.ora

```
EXTERNAL_PROCEDURE_LISTENER =
(ADDRESS_LIST =
  (ADDRESS = (PROTOCOL=ipc)
              (KEY=extproc_key)
            )
)
...
SID_LIST_EXTERNAL_PROCEDURE_LISTENER =
(SID_LIST =
  (SID_DESC = (SID_NAME=extproc_agent)
              (ORACLE_HOME=/oracle)
              (PROGRAM=extproc)
            )
)
)
```

extproc

| | | |
|-------------|-------------------|-----|
| SID_NAME | tnsnames.ora | SID |
| ORACLE_HOME | 가 | |
| extproc | \$ORACLE_HOME/bin | |
| : | PL/SQL | |

```
SQL ALTER SYSTEM KILL SESSION
      SID가 7      가 15
```

```
ALTER SYSTEM KILL SESSION '7,15';
```

```
(SID)          V$SESSION
```

```
JWARD
```

```
SELECT sid, serial#
       FROM v$session
       WHERE username = 'JWARD';
SID      SERIAL#  STATUS
-----
       7         15  ACTIVE
      12         63  INACTIVE
```

```
Oracle      SQL      ACTIVE      Oracle
SQL
:           Oracle8i Tuning
```

```
Oracle      SQL      (ACTIVE)
```

```
ORA-00028: your session has been killed
```



```

ORA-00028                                가 가
      Oracle
ORA-01012: not logged on
      ( , I/O
      )
      ALTER
SYSTEM                                60
      1 ALTER SYSTEM
      " marked "
V$SESSION status "KILLED" server "PSEUDO"

```

```

      Oracle      SQL      (INACTIVE)
ORA-00028                                가
      V$SESSION      STATUS "KILLED"
      가      ORA-00028
V$SESSION

```

```

SELECT sid,serial#,status,server
FROM v$session
WHERE username = 'JWARD';

SID      SERIAL#  STATUS  SERVER
-----
      7      15  INACTIVE DEDICATED
      12     63  INACTIVE DEDICATED
2 rows selected.

```

```

ALTER SYSTEM KILL SESSION '7,15';
Statement processed.

```

```

SELECT sid, serial#, status, server
FROM v$session
WHERE username = 'JWARD';

SID      SERIAL#  STATUS  SERVER
-----
      7      15  KILLED  PSEUDO

```

12 63 INACTIVE DEDICATED
2 rows selected.

CONTROL_FILES
CONTROL_FILES

Oracle CONTROL_FILES

가

가

CONTROL_FILES

Oracle CONTROL_FILES

가

: 가 가

가

CREATE
DATABASE MAXDATAFILES, MAXLOGFILES, MAXLOG-
MEMBERS, MAXLOGHISTORY MAXINSTANCES
가 가
가
:

가

Oracle

가

가

CONTROL_FILES

CONTROL_FILES

BASE CONTROLFILE REUSE 가 CREATE DATA-
가 가 REUSE
가

MAXLOGFILES, MAXLOGMEMBERS, MAXLOGHISTORY, MAXDATA-
FILES MAXINSTANCES

CONTROL_FILES

Oracle

CONTROL_FILES

가

:

가

가 가
가 .

- 1.
- 2.
- 3.
- 4.

가

CONTROL_FILES

가

CREATE CONTROLFILE

, MAXLOGFILES, MAXLOGMEMBERS, MAXLOG-
HISTORY, MAXDATAFILES MAXINSTANCES
CREATE DATABASE

PROD ()

```
CREATE CONTROLFILE
SET DATABASE prod
LOGFILE GROUP 1 ('logfile1A', 'logfile1B') SIZE 50K,
GROUP 2 ('logfile2A', 'logfile2B') SIZE 50K
```

```
NORESETLOGS
DATAFILE 'datafile1' SIZE 3M, 'datafile2' SIZE 5M
MAXLOGFILES 50
MAXLOGMEMBERS 3
MAXDATAFILES 200
MAXINSTANCES 6
ARCHIVELOG;
```

: CREATE CONTROLFILE
가 .

: CREATE CONTROLFILE

Oracle8i SQL

1.

SYSTEM 5

2.

가

가

IMMEDIATE

ABORT

3.

4.

5. CREATE CONTROLFILE

```
        RESETLOGS
        .(8 )
        NORESETLOGS
        RESETLOGS
6.
7.
CONTROL_FILES          5      6          (
        )
8.
        RESETLOGS
        (5 )
        . NO-
        RESETLOGS
        CONTROL FILE
        USING BACKUP
9.
8
ALTER DATABASE
        RESETLOGS
        RESETLOGS
        가
```

Oracle8i Backup and Recovery Guide

CREATE CONTROLFILE
가

가

가

CREATE CONTROLFILE

Oracle

, ALERT

Oracle

MISSINGnnnn(nnnn)
MISSINGnnnn

가 MISSINGnnnn

1: CREATE CONTROLFILE NORESETLOGS
RESETLOGS

가

2: CREATE CONTROLFILE
RESETLOGS

RESETLOGS

MISSINGnnnn

RESETLOGS
MISSINGnnnn
RESETLOGS

Oracle
Oracle

ALERT

CREATE CONTROLFILE

(Oracle
ORA-01173, ORA-01176, ORA-01177, ORA-01215
ORA-01216) 가 CREATE CONTROLFILE 3
4

가

1.

2.

CONTROL_FILES

3.

:



Tuning : Oracle Parallel Server
가 Oracle8i Parallel Server Concepts and Administration
.

가

가

:

가

Oracle Parallel Server

가
가

Oracle Parallel Server

가

: Oracle Parallel Server
Parallel Server Concepts and Administration

Oracle8i

가

,

Oracle

SGA

(LGWR)

LGWR

SGA

Oracle



(SCN)가

가

가

가
LGWR

Oracle

Oracle

. Oracle

(ARCHIVELOG)

LGWR

LGWR

가

가

LGWR

6-1

LGWR

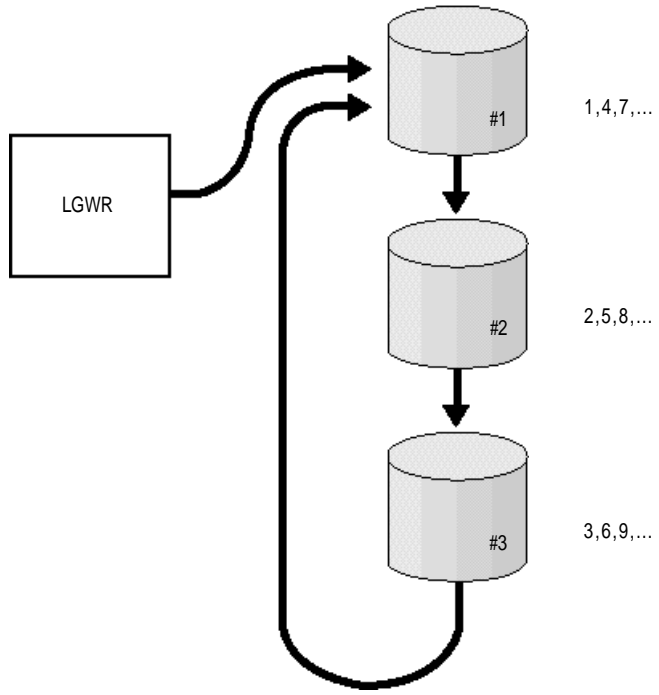
LGWR

(NOARCHIVELOG)

(ARCHIVELOG)

LGWR

6-1 LGWR



()

Oracle

. LGWR

Oracle ARcn

가

Oracle

Oracle

가

LGWR

Oracle

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가

Oracle

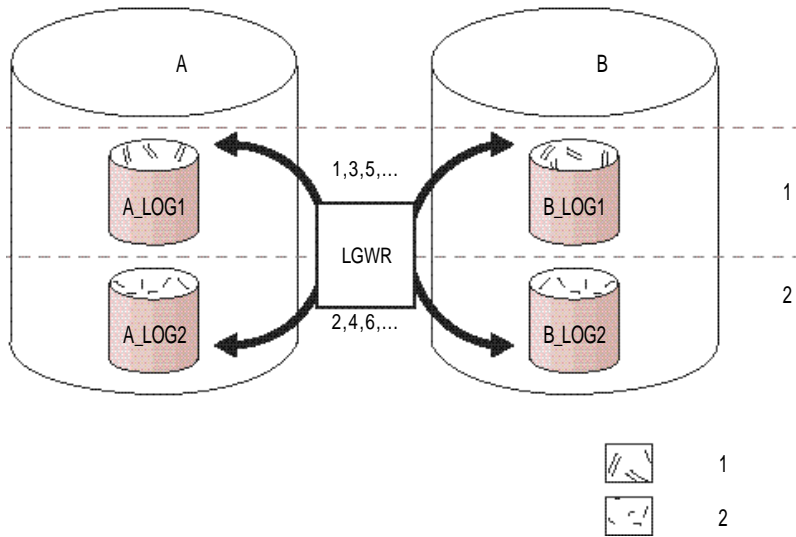
Oracle

LGWR

가

가

6-2



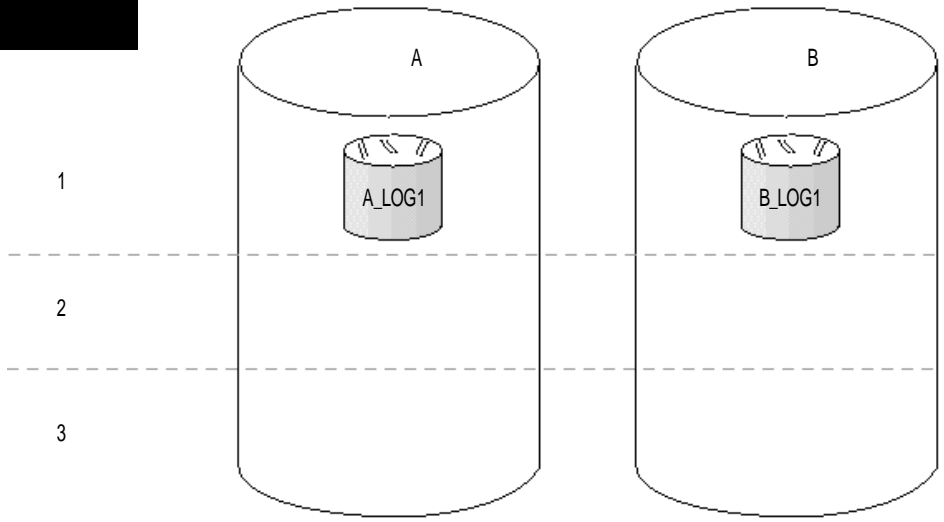
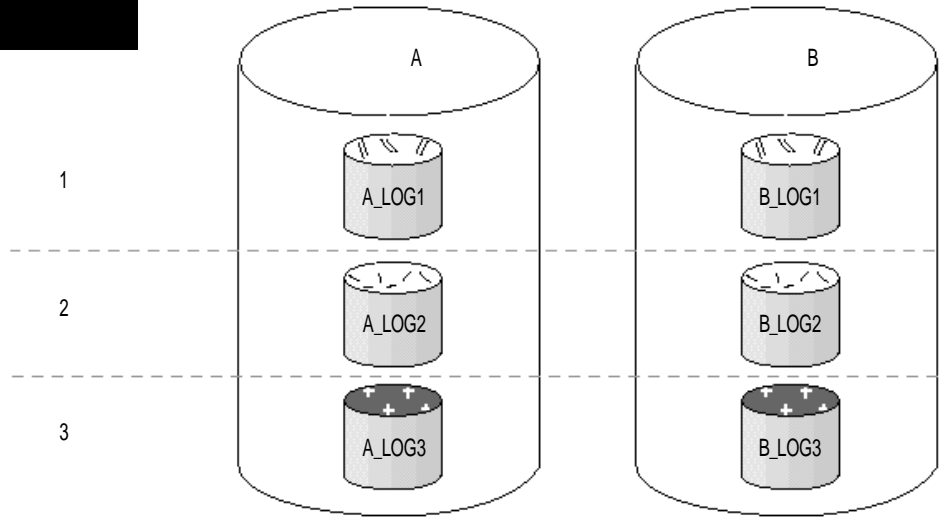
6-2 A_LOG1 B_LOG1 1 A_LOG2
 B_LOG2 2
 LGWR
 LGWR
 B_LOG1 A_LOG1 (B-LOG2 A_LOG2
 LGWR , A_LOG1 B_LOG2)




LGWR Oracle
 LGWR LGWR
 LGWR

| | |
|------|---|
| | |
| LGWR | 가 . LGWR 가 |
| LGWR | |
| LGWR | Oracle 가 () Oracle Oracle ALTER DATABASE CLEAR UNARCHI- VED LOG |
| LGWR | Oracle 가 () 가 Oracle |

가 . Oracle , 가 가
가
가
6-3 가
가

6-3



-  1
-  2
-  3

가 LGWR
가

LGWR ARCn ,
LGWR(
) ARCn()

: 가 Oracle8i
Backup and Recovery Guide

() ,
49%가

가 가
가

:
LGWR 가

가

가 LGWR

가 가 LGWR
가

가 LGWR 가

가

가

CREATE DATABASE MAXLOGFILES 1

MAXLOGFILES

Oracle CREATE DATABASE MAXLOGFILES

LOG_FILES

LOG_FILES가 MAXLOGFILES 가

LOG_FILES가

Oracle

CREATE DATABASE MAXLOGMEMBERS
MAXLOGFILES

BASE MAXLOGMEMBERS CREATE DATA-
Oracle

: MAXLOGFILES MAXLOGMEMBERS LOG_FILES

ALTER DATABASE

가
가
MAXLOGFILES 가

SQL ALTER DATABASE ADD LOGFILE

가

ALTER DATABASE ADD LOGFILE ('/oracle/dbs/log1c.rdo', '/oracle/dbs/lo- g2c.rdo') SIZE 500K;

:

ALTER DATABASE ADD LOGFILE GROUP

ALTER DATABASE ADD LOGFILE GROUP 1 ('/oracle/dbs/log1c.rdo', '/oracle/dbs/log2c.rdo')
SIZE 500K;

1 MAXLOGFILES
(, 10, 20, 30)

가

가

SQL ALTER DATABASE ADD LOG MEMBER

2 가

ALTER DATABASE ADD LOGFILE MEMBER '/oracle/dbs/log2b.rdo' TO GROUP 2;

가

ALTER DATABASE TO

ALTER DATABASE ADD LOGFILE MEMBER '/oracle/dbs/log2c.rdo' TO
('/oracle/dbs/log2a.rdo', '/oracle/dbs/log2b.rdo');

:

ALTER DATABASE

:

1.

가

2.

```
=====
: SQL*Plus          HOST
=====
```

3.

```
ALTER DATABASE      RENAME FILE
```

4.

가
(가

)

5.

가

가

diska diskb

```
/log1a.rdo /diskb/logs/log1b.rdo , /diska/logs
/log2a.rdo /diskb/logs/log2b.rdo /diska /logs
```

```

diska                                diskc
                                /diskc/logs/log1c.rdo  /diskc/logs/log2c.rdo
.
.
diska  /diska/logs/log1a.rdo  /diska/logs/log2a.rdo      diskc
      /diskc/logs/log1c.rdo  /diskc/logs/log2c.rdo      .
ALTER DATABASE RENAME FILE '/diska/logs/log1a.rdo', '/diska/logs/log2a.rdo' TO
'/diskc/logs/log1c.rdo', '/diskc/logs/log2c.rdo';

```

Oracle

ALTER DATABASE

(.)

가 . 6-16 “

```

)
ARCHIVE LOG LIST
SQL ALTER DATABASE DROP LOGFILE

```

3

```
ALTER DATABASE DROP LOGFILE GROUP 3;
```

ALTER DATABASE

가 , 가 가
가 가
가 (가 .)
Oracle V\$LOGFILE
Oracle INVALID 가
STALE 가
가
가 ()
SQL*Plus ARCHIVE LOG LIST
SQL ALTER DATABASE DROP LOGFILE MEMBER
/oracle/dbs/log3c.rdo

```
ALTER DATABASE DROP LOGFILE MEMBER '/oracle/dbs/log3c.rdo';
```

가

SQL*Plus

SQL*Plus

LGWR

가

가

가

```
ALTER SYSTEM SWITCH LOGFILE
```

SQL

```
ALTER SYSTEM SWITCH LOGFILE;
```

: Oracle Parallel Server
Parallel Server Concepts and Administration

Oracle8i

```
LOG_BLOCK_CHECKSUM TRUE
```

Oracle

```
LOG_BLOCK_CHECKSUM FALSE
```

Oracle
Oracle
Oracle
Oracle

Oracle
가
SQL ALTER DATABASE...CLEAR LOGFILE

3
ALTER DATABASE CLEAR UNARCHIVED LOGFILE GROUP 3;

ALTER DATABASE CLEAR LOGFILE UNARCHI-
VED
Oracle

ALTER DATABASE CLEAR LOGFILE UNRECO-
VERABLE DATAFILE

: ALTER DATABASE

Oracle8i SQL

V\$LOG, V\$LOGFILE V\$THREAD

. V\$THREAD

Parallel Server

가

Parallel Server

```
SELECT group#, bytes, members FROM sys.v$log;
```

| GROUP# | BYTES | MEMBERS |
|--------|-------|---------|
| 1 | 81920 | 2 |
| 2 | 81920 | 2 |

```
SELECT * FROM sys.v$logfile  
WHERE group# = 2;
```

| GROUP# | STATUS | MEMBER |
|--------|--------|--------|
| 2 | | LOG2A |
| 2 | STALE | LOG2B |
| 2 | | LOG2C |

STATUS가

NOARCHIVELOG ARCHIVELOG

LogMiner

: Parallel Server Oracle OPS
가 Oracle8i Parallel Server Concepts and Administration

Oracle

ARCn

LogMiner

A_LOG1

B_LOG1

A_LOG1

ARCn

ARCn

B_LOG1

1

LGWR

7-1

ARCn

NOARCHIVELOG

ARCHIVELOG

NOARCHIVELOG

ARCHIVELOG

NOARCHIVELOG

ARCHIVELOG

NOARCHIVELOG

NOARCHIVELOG

가

LGWR

가

가

OG

ARCHIVELOG-
가

NOARCHIVELOG

가

NOARCHIVELOG

가

()

NOARCHIVELOG

가 ARCHIVELOG

가

NOARCHIVELOG

NOARCHIVELOG

ARCHIVELOG

ARCHIVELOG

LGWR

가

가

가

가

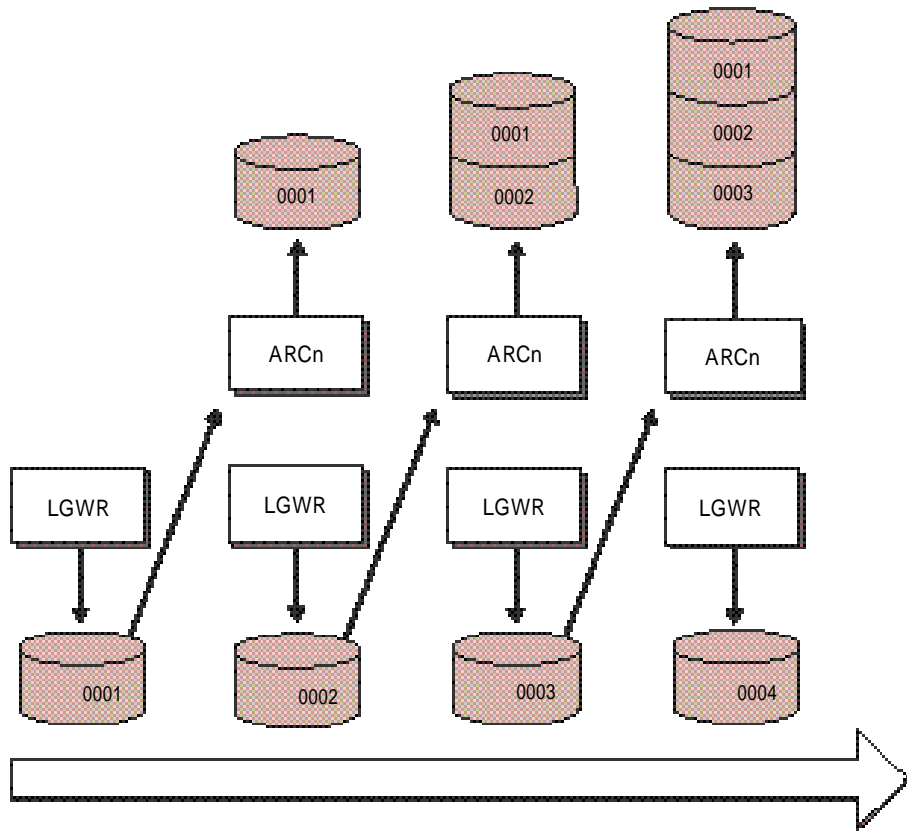
가

7-2

ARCn)가

(

7-2 ARCHIVELOG



가 ARCHIVELOG

가 NOARCHIVELOG

NOARCHIVELOG

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6-16

“

”

: Oracle 가

ATE DATABASE
ELOG

CRE-
NOARCHIV-

NOARCHIVELOG ARCHIVELOG
SQL ALTER DATABASE ARCHIVELOG NOARC-
HIVELOG NOARCHIVEL-
OG ARCHIVELOG

ALTER DATABASE ARCHIVELOG;

1.

2.

3. .)

: Oracle Parallel Server

4.

ALTER DATABASE
ARCHIVELOG

Oracle

: Oracle Parallel Server
Oracle8i Parallel Server Concepts and Administration

Oracle

가

Oracle

: Oracle 가 ARCHIVELOG

:

. 7-11

“

”

. 7-10

“

”

가
LOG_ARCHIVE_START
TRUE

LOG_ARCHIVE_START=TRUE

가

SQL ALTER SYSTEM ARCHIVE LOG START

ALTER SYSTEM ARCHIVE LOG START;

ALTER SYSTEM

가

ARCHIVELOG

LGWR

ALTER SYSTEM

가

START

FALSE

LOG_ARCHIVE_

LOG_ARCHIVE_START=FALSE

가

SQL ALTER SYSTEM ARCHIVE LOG STOP

ALTER SYSTEM ARCHIVE LOG STOP;

ARCn

ARCn

가

ARCHIVELOG

LGWR

Oracle ALERT

SQL ALTER SYSTEM ARCHIVE LOG

ALTER SYSTEM ARCHIVE LOG ALL;

: Oracle Parallel Server

Oracle8i Parallel Server Concepts and Administration

| | | |
|---|--|---|
| | | |
| LOG_ARCHIVE_DEST_n (n 1 5) | | LOG_ARCHIVE_DEST_1 = ' LOCATION = /disk1 /arc ' LOG_ARCHIVE_DEST_2 = ' SERVICE = standby1 ' |
| LOG_ARCHIVE_DEST LOG_ARCHIVE_DUPLEX_DEST | | LOG_ARCHIVE_DEST = /oracle/arc LOG_ARCHIVE_DUPLEX_DEST = /bak |

LOG_ARCHIVE_DEST_n (n 1 5)

가

LOG_ARCHIVE_DEST_1, LOG_ARCHIVE_DEST_2

LOG_ARCHIVE_DEST_n

| | | |
|----------|------|---|
| | | |
| LOCATION | | LOG_ARCHIVE_DEST_1 = ' LOCATION = /arc ' |
| SERVICE | Net8 | LOG_ARCHIVE_DEST_2 = ' SERVICE = standby1 ' |

```

LOCATION
SERVICE Oracle tnsnames.ora
Oracle
SID 가
LOG_ARCHIVE_DEST
LOG_ARCHIVE_DUPLEX_DEST 2
Oracle

```

LOG_ARCHIVE_DEST_n

1. SQL*Plus

```
SHUTDOWN IMMEDIATE;
```

2. LOG_ARCHIVE_DEST_n 1 5
LOCATION

```

LOG_ARCHIVE_DEST_1 = 'LOCATION = /disk1/archive'
LOG_ARCHIVE_DEST_2 = 'LOCATION = /disk2/archive'
LOG_ARCHIVE_DEST_3 = 'LOCATION = /disk3/archive'

```

```

SERVICE tnsnames.
ora

```

```
LOG_ARCHIVE_DEST_4 = 'SERVICE = standby1'
```

3. LOG_ARCHIVE_FORMAT %s %t (%S
%T) 0 ,

```
LOG_ARCHIVE_FORMAT = arch%s.arc
```

100, 101 102

```

SQL*Plus: Release 8.1.6.0.0 - Production on Tue Aug 14 2001
Copyright (c) 1982, 2001, Oracle Corporation. All rights reserved.
Connected to: Oracle Database 8i Release 8.1.6.0.0 - Production

```

LOG_ARCHIVE_DEST LOG_ARCHIVE_DUPLEX_DEST

1. SQL*Plus

```
SHUTDOWN IMMEDIATE;
```

2. LOG_ARCHIVE_DEST LOG_ARCHIVE_DUPLEX_DEST
(ALTER SYSTEM LOG_ARCHIVE_DUPLEX_DEST .)

```
LOG_ARCHIVE_DEST = '/disk1/archive'  
LOG_ARCHIVE_DUPLEX_DEST = '/disk2/archive'
```

3. LOG_ARCHIVE_FORMAT %s %t (%S
%T) 0 ,

```
LOG_ARCHIVE_FORMAT = arch_%t_%s.arc
```

```
, 1 100 101
```

```
/disk1/archive/arch_1_100.arc, /disk1/archive/arch_1_101.arc  
/disk2/archive/arch_1_100.arc, /disk2/archive/arch_1_100.arc
```

: Oracle8i Back-up and Recovery Guide

LOG_ARCHIVE_DEST_STATE_n (n 1 5)
ENABLE DEFER

가 . ENABLE Oracle
DEFER Oracle

가 가 가

/ :

가 / 가 : Oracle

/ : 가
 가 가 . V\$ARCHIVE_DEST
 . 가
 가

7-1

7-1

| | 가 | | | |
|-------|-------|-------|--------------|-----------------------------|
| FALSE | N/A | N/A | INACTIVE | 가 |
| TRUE | TRUE | TRUE | VALID | 가 가 |
| TRUE | TRUE | FALSE | ERROR | 가 |
| TRUE | FALSE | TRUE | DEFERRED | 가 |
| TRUE | FALSE | FALSE | DISABLED | 가 |
| N/A | N/A | N/A | BAD PARAM | 가 LOG_ARCHIVE_ START가 |

: V\$ARCHIVE_DEST
 Oracle8i Reference

가 가

HIVE_DEST_n LGWR 가 LOG_ARCHIVE_DEST

가 가

:

ARCn

(RFS)

ARCn RFS Oracle
ARCn 가
RFS

Net8 Oracle
Net8
SERVICE_NAME tnsnames.ora

Oracle

SID 가

RFS

ARCn

ARCn
RFS

RFS

RFS

ARCn

STANDBY_ARCHIVE_DEST

(

.)

가

:
Guide

Oracle8i Backup and Recovery

Net8

Net8 Administrator's Guide

Oracle8i

Oracle

ARCn

) LOG_ARCHIVE_MIN_SUCCEED_DEST = n(n 1 5
Oracle
1

LOG_ARCHIVE_DEST_n OPTIONAL()
MANDATORY LOG_ARCHIVE_MIN_SUCCEED_
DEST =n MANDATORY OPTIONAL
가 LGWR

MANDATORY OPTIONAL

OPTIONAL MANDATORY
가

LOG_ARCHIVE_MIN_SUCCEED_DEST 1 LOG_ARCH-
IVE_MIN_SUCCEED_DEST =n
MANDATORY

MANDATORY MANDATORY LOG_
ARCHIVE_MIN_SUCCEED_DEST 가

LOG_ARCHIVE_MIN_SUCCEED_DEST
MANDATORY OPTIONAL

MANDATORY DEFER Oracle

LOG_ARCHIVE_DEST LOG_ARCHIVE_DUPLEX_DEST

LOG_ARCHIVE_DEST

LOG_ARCHIVE_DUPLEX_DEST
 MIN_SUCCEED_DEST = 1
 ED_DEST = 2

LOG_ARCHIVE_
 LOG_ARCHIVE_MIN_SUCCE-

가 LOG_ARCHIVE_DEST_n LOG_ARCHIVE_
 MIN_SUCCEED_DEST . 1
 OPTIONAL . 7-2
 LOG_ARCHIVE_MIN_SUCCEED_DEST = n 가

7-2 1 LOG_ARCHIVE_MIN_SUCCEED_DEST

| | | |
|---|--------|----------|
| 1 | Oracle | OPTIONAL |
| 2 | Oracle | OPTIONAL |
| 3 | Oracle | OPTIONAL |
| 4 | : | . |
| 5 | : | . |

가 LOG_ARCHIVE_DEST_n MAND-
 ATORY Oracle LOG_ARCHIVE_MIN_SUCCE-
 ED_DEST가 1, 2 3

2

MANDATORY

OPTIONAL

가

7-3 LOG_ARCHIVE_MIN_SUCCEED_DEST = n 가

7-3 2 LOG_ARCHIVE_MIN_SUCCEED_DEST

| | | | |
|---|--------|-----------|--------|
| 1 | Oracle | MANDATORY | (, 2) |
| 2 | Oracle | OPTIONAL | . |
| 3 | Oracle | OPTIONAL | . |
| 4 | Oracle | OPTIONAL | . |
| 5 | : | . | . |

LOG_ARCHIVE_MIN_SUCCEED_DEST
Oracle MANDATORY

: LOG_ARCHIVE_MIN_SUCCEED_DEST = n
Oracle8i Reference

LOG_ARCHIVE_DEST_n REOPEN ARCn

REOPEN OPEN

REOPEN = n ARCn ()

. n 300 0 REOPEN
. , ARCn REOPEN
ARCn

REOPEN

. REOPEN 가 REOPEN

OPTIONAL REOPEN 가 Oracle
. MANDATORY REOPEN

Oracle

REOPEN

ARCn

ARCn

REOPEN

ARCn

REOPEN

ARCn

REOPEN ACTIVE = TRUE

VALID ENABLED

ARCn

, ARCn

ARCn

CPU

, ARCn

ARCn

Oracle8i Tuning

ARCn

10 ARCn

LOG_ARCHIVE_MAX_PROCESSES = n(n 1 10)

0

LGWR ARCn

가

ARCn

가

ARCn

LGWR

ARCn

ARCn

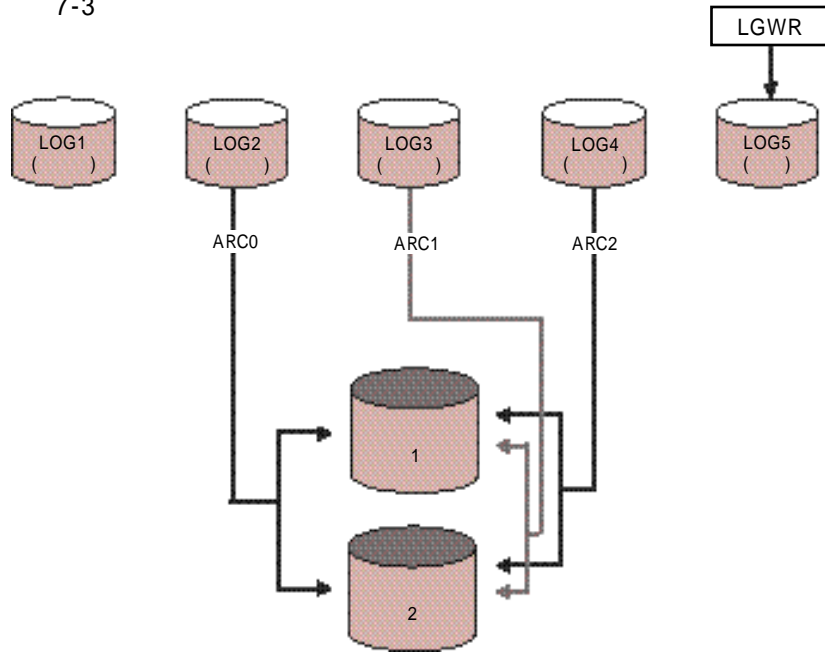
ARCn

LGWR

ARCn

ARCn

7-3



가

LOG_ARCHIVE_BUFFERS() LOG_ARCHIVE_BUFFER_SIZE()

: LOG_ARCHIVE_BUFFERS LOG_ARCHIVE_BUFFER_SIZE

가 ARCn
 (LOG_ARCHIVE_BUFFERS) 1
 (LOG_ARCHIVE_BUFFER_SIZE) 가
 ARCn ARCn
 LOG_ARCHIVE_BUFFER_SIZE

| | |
|-------------|--------|
| : | Oracle |
| 가 Oracle | 가 |

ARCn

가
 LOG_ARCHIVE_BUFFERS 2
 3

가

: LOG_ARCHIVE Oracle8i Reference

가

| | |
|-------------|---------------------------|
| | |
| V\$DATABASE | 가 ARCHIVELOG NOARCHIVELOG |

| | | |
|-------------------|-------------------|-----|
| V\$ARCHIVED_LOG | RC_ARCHIVED_LOG | 가 |
| V\$ARCHIVE_DEST | | |
| V\$BACKUP_REDOLOG | RC_BACKUP_REDOLOG | 가 |
| V\$LOG | | |
| V\$LOG_HISTORY | | SCN |

```
SELECT group#, archived
       FROM sys.v$log;
```

```
GROUP#      ARC
-----  ---
1           YES
2           NO
```

V\$DATABASE

```
SELECT log_mode FROM sys.v$database;
```

```
LOG_MODE
-----
NOARCHIVELOG
```

SQL ARCHIVE LOG LIST

```
ARCHIVE LOG LIST;
```

```
Database log mode          ARCHIVELOG
Automatic archival        ENABLED
Archive destination       destination
Oldest online log sequence 30
Next log sequence to archive 32
Current log sequence number 33
```

ARCHIVELOG

```
(
.)
가 30
32
33
Next log sequence to archive      Current log sequence number
가 32
```

Oracle8i Reference

LogMiner

```
Oracle      LogMiner
SQL          . LogMiner
```

LogMiner

LogMiner

LogMiner :

LogMiner

LogMiner
LogMiner
SQL
MNR_CONTENTS
)
V\$LOGMNR_CONTENTS

SQL (SQL_UNDO)
SQL_UNDO
V\$LOG-
SQL (SQL_REDO

SCN

가

: LogMiner

Oracle8i Refernece

LogMiner LogMiner

가

Oracle 8.1

8.0

PL/SQL

LogMiner가

DML

/

가

LogMiner
. LogMiner

Oracle

ID 16 가 SQL Oracle SQL

```
INSERT INTO emp(name, salary) VALUES ('John Doe', 50000);
```

LogMiner

```
insert into Object$81(col#1, col#2) values (hexoraw('4a6f686e20446f65'),  
hexoraw('c306'));"
```

DICTIONARY_FILENAME

DICTIONARY_LOCATION

Oracle8i

1. init.ora UTL_FILE_DIR PL/SQL 가

, /oracle/logs

UTL_FILE_DIR = /oracle/logs

2. SQL*Plus

: DBMS_LOGMNR_D
ence

Oracle8i Supplied Packages Reference

ADD_LOGFILE

NEW:

ADDFILE: 가

REMOVEFILE:

LogMiner

1. SQL*Plus

Oracle

startup

2. DBMS_LOGMNR.ADD_LOGFILE

NEW

, /oracle/logs/log1.f

```
execute dbms_logmnr.add_logfile(
LogFileName => '/oracle/logs/log1.f',
Options => dbms_logmnr.NEW);
```

3. 가 ADDFILE 가

, /oracle/logs/log2.f 가

```
execute dbms_logmnr.add_logfile(
LogFileName => '/oracle/logs/log2.f',
Options => dbms_logmnr.ADDFILE);
```

4. REMOVEFILE

/oracle/logs/log2.f

```
execute dbms_logmnr.add_logfile(
LogFileName => '/oracle/logs/log2.f',
Options => dbms_logmnr.REMOVEFILE);
```

: DBMS_LOGMNR

Oracle8i Supplied Packages Reference

LogMiner

LogMiner

| | |
|--------------|-----|
| | |
| StartScn | SCN |
| EndScn | SCN |
| StartTime | |
| EndTime | |
| DictFileName | |

LogMiner

| | |
|----------------------|----------|
| | |
| V\$LOGMNR_DICTIONARY | |
| V\$LOGMNR_PARAMETERS | LogMiner |
| V\$LOGMNR_FILES | |
| V\$LOGMNR_CONTENTS | |

LogMiner

1. DBMS_LOGMNR.START_LOGMNR LogMiner
LogMi-
ner

```
execute dbms_logmnr.start_logmnr(
DictFileName => '/oracle/dictionary.ora');
```

StartTime EndTime TO_DATE

```
execute dbms_logmnr.start_logmnr(
DictFileName => '/oracle/dictionary.ora',
StartTime => to_date('01-Jan-98 08:30:00', 'DD-MON-YYYY HH:MI:SS')
EndTime => to_date('01-Jan-1998 08:45:00', 'DD-MON-YYYY HH:MI:SS'    ));
```


LogMiner :

LogMiner .

JOEDEVO가 .

- 1 :
- 2 : 가
- 3 : LogMiner

1 : LogMiner JOEDEVO
LogMiner .

orcldict.ora .

/user/local/dbs .

UTL_FILE_DIR /user/local/dbs .

Set the initialization parameter UTL_FILE_DIR in the init.ora file
UTL_FILE_DIR = /user/local/dbs

Start SQL*Plus and then connect to the database
connect system/manager

Open the database to create the dictionary file
startup

Create the dictionary file
execute dbms_logmnr_d.build(
dictionary_filename => 'orcldict.ora',
dictionary_location => '/usr/local/dbs');

The dictionary has been created and can be used later
shutdown;

2 : 가 가

loglorcl.ora

log2orcl.ora 가 .

LogMiner 1998 1 1 8 30 8 45

```
# Start SQL*Plus, connect as SYSTEM, then start the instance
connect system/manager
startup nomount
```

```
# Supply the list of logfiles to the reader. The Options flag is set
# to indicate this is a new list.
```

```
execute dbms_logmnr.add_logfile(Options => dbms_logmnr.NEW,
LogFileName => 'loglorcl.ora');
```

```
# Add a file to the existing list. The Options flag is clear to
# indicate that you are adding a file to the existing list
```

```
execute dbms_logmnr.add_logfile(Options => dbms_logmnr.ADDFILE,
LogFileName => 'log2orcl.ora');
```

```
3 : LogMiner V$LOGMNR_CONTENTS
      JOEDEVO가
      JOEDEVO가
      가 . ( JOEDEVO
      !)
```

```
# Start the LogMiner. Limit the search to the specified time range.
execute dbms_logmnr.start_logmnr(
DictFileName => 'orcl字典.ora',
StartTime => to_date('01-Jan-98 08:30:00', 'DD-MON-YYYY HH:MI:SS')
EndTime => to_date('01-Jan-1998 08:45:00', 'DD-MON-YYYY HH:MI:SS'));
```

```
SELECT sql_redo, sql_undo FROM v$logmnr_contents
WHERE username = 'JOEDEVO' AND tablename = 'SALARY';
```

```
# The following data is displayed (properly formatted)
```

```
SQL_REDO          SQL_UNDO
-----          -
delete * from SALARY      insert into SALARY(NAME,EMPNO, SAL)
```

```

where EMPNO = 12345                values ('JOEDEVO', 12345,500)
and ROWID = 'AAABOOAABAAEPCABA';

insert into SALARY(NAME, EMPNO, SAL) delete * from SALARY
values('JOEDEVO',12345,2500)       where EMPNO = 12345
                                   and ROWID = ' AAABOOAABAAEPCABA';

2 rows selected

```

Oracle RDBMS

8 2
 , LogMiner

```

execute dbms_logmnr.start_logmnr(
StartTime => '07-Aug-98',
EndTime => '15-Aug-98',
DictFileName => '/usr/local/dict.ora');

```

, V\$LOGMNR_CONTENTS

```

select seg_owner, seg_name, count(*) as Hits from
V$LOGMNR_CONTENTS where seg_name not like '%$%' group by
seg_owner, seg_name;

```

| SEG_OWNER | SEG_NAME | Hits |
|-----------|-----------|------|
| CUST | ACCOUNT | 384 |
| SCOTT | EMP | 12 |
| SYS | DONOR | 12 |
| UNIV | DONOR | 234 |
| UNIV | EXECDONOR | 325 |
| UNIV | MEGADONOR | 32 |

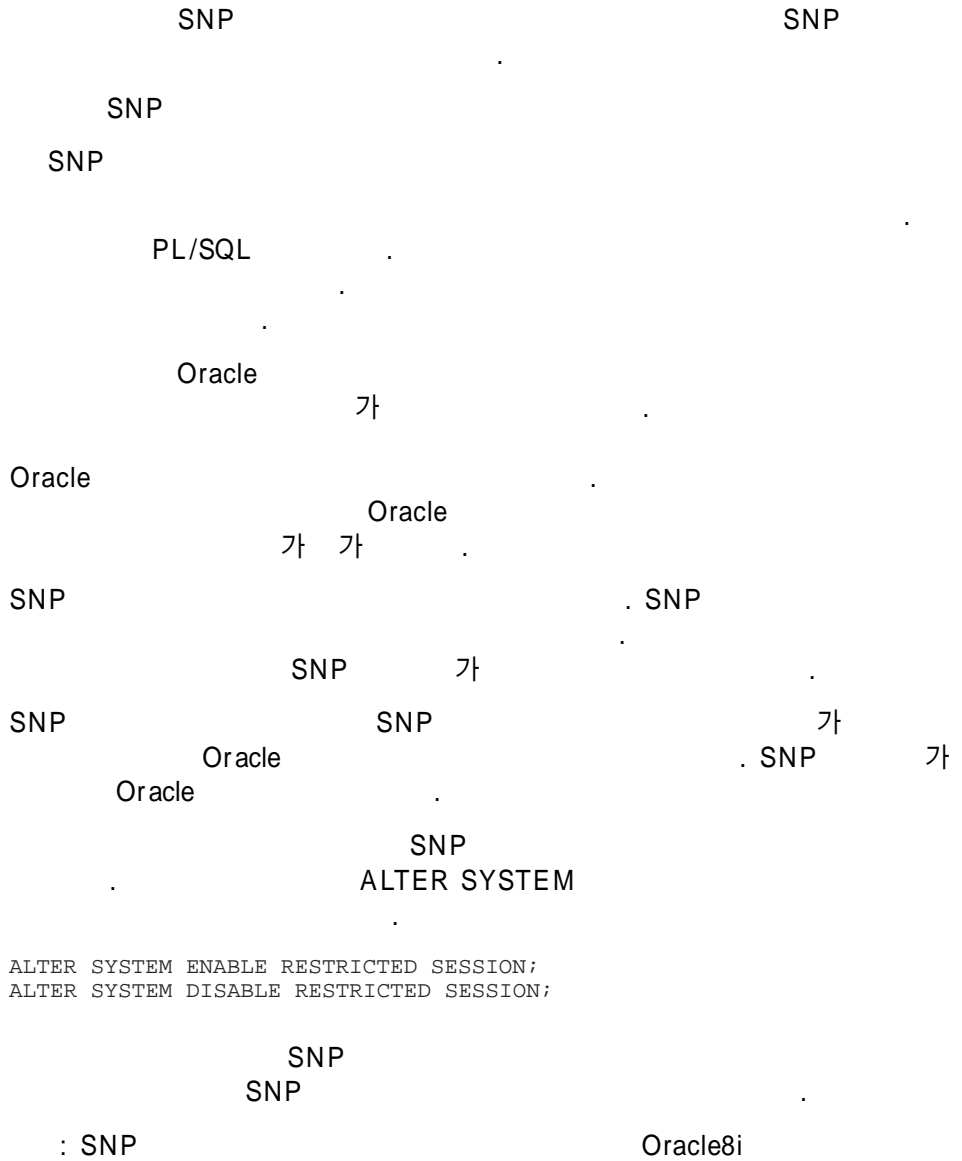
: V\$LOGMNR_CONTENTS LogMiner
 Oracle8i Reference

DBMS_LOGMNR.ADD_LOGFILE PL/SQL
 Oracle8i Supplied Packages Reference

PL/SQL

SNP

SNP



SNP

가 SNP0 SNP9 SNPA SNPZ 36 SNP
가 SNP 가

SNP

SNP

SNP

가

8-1

8-1

| | |
|---------------------|--|
| | |
| JOB_QUEUE_PROCESSES | : 0 : 0...36 : 가 SNP |
| JOB_QUEUE_INTERVAL | : 60() : 1...3600() : 가 SNP |

DBMS_JOB

DBMS_JOB

DBMS_JOB

8-2

DBMS_JOB

8-2 DBMS_JOB

| | | |
|-----------|--------|------|
| | | |
| SUBMIT | | 8-11 |
| REMOVE | | 8-11 |
| CHANGE | | 8-11 |
| WHAT | | 8-11 |
| NEXT_DATE | | 8-12 |
| INTERVAL | | 8-12 |
| BROKEN | Oracle | 8-12 |
| RUN | | 8-13 |

DBMS_JOB

SUBMIT

```
DBMS_JOB.SUBMIT(  job          OUT  BINARY_INTEGER,  
                  what         IN   VARCHAR2,  
                  next_date    IN   DATE DEFAULT SYSDATE,
```

```
      8> end;
      9> /
Statement processed.
print jobno
JOBNO
-----
14144
```

Oracle

```
MAC      (      )
Oracle      NLS
NLS_LANGUAGE
NLS_TERRITORY
NLS_CURRENCY
NLS_ISO_CURRENCY
NLS_NUMERIC_CHARACTERS
NLS_DATE_FORMAT
NLS_DATE_LANGUAGE
NLS_SORT
Oracle
LANGUAGE  NLS_TERRITORY      NLS_
DBMS_SQL      ALTER SESSION
```

/

: 가

Oracle

SYS.JOBSEQ

가

SUBMIT

WHAT

PL/SQL

가

:

8-4

| | | |
|-----------|--------|----------|
| job | IN | |
| next_date | IN/OUT | SYSDATE |
| broken | IN/OUT | FALSE IN |

```
'myproc('10-JAN-82', next_date, broken);'
'scott.emppackage.give_raise('JFEE', 3000.00);'
'dbms_job.remove(job);'
```

INTERVAL

INTERVAL
가 NULL

가 NEXT_DATE가 INTERVAL

INTERVAL

'SYSDATE + 7'

'SYSDATE + 7'

'SYSDATE + 7'

(
INTERVAL NEXT_DATE
DAY(TRUNC(SYSDATE), 'MONDAY')

'NEXT_

JQ Enterprise Manager Lock Monitor

JQ

```
SELECT sid, type, id1, id2
FROM v$lock
WHERE type = 'JQ';
```

| SID | TY | ID1 | ID2 |
|-----|----|-----|-------|
| 12 | JQ | 0 | 14144 |

1 row selected.

JQ 0 ID2 12 ID1

ORA-12012 가 Oracle

SNP 가

Oracle 1 , Oracle 2 , Oracle 4 가
 Oracle 16 Oracle
 Oracle 16 Oracle
 Oracle8i Reference
 Oracle8i

DBMS_JOB REMOVE

DBMS_JOB.REMOVE(job IN BINARY_INTEGER)

14144

DBMS_JOB.REMOVE(14144);

DBMS_JOB CHANGE, WHAT, NEXT_DATE
INTERVAL

가 14144 3

DBMS_JOB.CHANGE(14144, null, null, 'SYSDATE + 3');

CHANGE

DBMS_JOB.CHANGE

8-3

DBMS_JOB.CHANGE(job IN BINARY_INTEGER,
what IN VARCHAR2,
next_date IN DATE,
interval IN VARCHAR2)

CHANGE NULL WHAT, NEXT_DATE
INTERVAL .

: CHANGE WHAT
Oracle .

WHAT

DBMS_JOB.WHAT . 8-3

DBMS_JOB.WHAT(job IN BINARY_INTEGER,
what IN VARCHAR2)

: WHAT Oracle .

NEXT_DATE

DBMS_JOB.NEXT_DATE Oracle

. 8-3 .

DBMS_JOB.NEXT_DATE(job IN BINARY_INTEGER,
next_date IN DATE)

INTERVAL

DBMS_JOB.INTERVAL

. 8-3 .

DBMS_JOB.INTERVAL(job IN BINARY_INTEGER,
interval IN VARCHAR2)

. Oracle

DBMS_JOB.RUN

Oracle 16

DBMS_JOB.BROKEN

DBMS_JOB

BROKEN

8-4

```
DBMS_JOB.BROKEN( job          IN BINARY_INTEGER,  
                 broken       IN BOOLEAN,  
                 next_date    IN DATE DEFAULT SYSDATE)
```

14144

```
DBMS_JOB.BROKEN(14144, FALSE, NEXT_DAY(SYSDATE, 'MONDAY'));
```

Oracle 가

DBMS_JOB.RUN

16 Oracle

DBMS_JOB.RUN

DBMS_JOB.BROKEN

Oracle

DBMS_JOB.RUN

Oracle

Oracle

RUN BROKEN

가

DBMS_JOB RUN

Oracle

DBMS_JOB.RUN(job IN BINARY_INTEGER)

DBMS_JOB.RUN

Oracle

, NEXT_DATE 'SYSDATE' INTERVAL
'SYSDATE + 7'

7

RUN

:

14144

DBMS_JOB.RUN(14144);

RUN

RUN

. Oracle

V\$SESSION
SYSTEM

SQL

ALTER

:

“

”

8-6

8-6

| | |
|------------------|--------------|
| | |
| DBA_JOBS | |
| USER_JOBS | 가 |
| DBA_JOBS_RUNNING | V\$LOCK JOBS |

가

```
SELECT job, next_date, next_sec, failures, broken
FROM user_jobs;
```

| JOB | NEXT_DATE | NEXT_SEC | FAILURES | B |
|-------|-----------|----------|----------|---|
| 9125 | 01-NOV-94 | 00:00:00 | 4 | N |
| 14144 | 24-OCT-94 | 16:35:35 | 0 | N |
| 41762 | 01-JAN-00 | 00:00:00 | 16 | Y |

3 rows selected.

```
SELECT sid, r.job, log_user, r.this_date, r.this_sec
FROM dba_jobs_running r, dba_jobs j
WHERE r.job = j.job;
```

| SID | JOB | LOG_USER | THIS_DATE | THIS_SEC |
|-----|-------|----------|-----------|----------|
| 12 | 14144 | JFEE | 24-OCT-94 | 17:21:24 |
| 25 | 8536 | SCOTT | 24-OCT-94 | 16:45:12 |

2 rows selected.





가

DBMS_SPACE_ADMIN

가 가
I/O

가
가

()

: Oracle 가 가

: 11 17

, , , ()

: 23-13 “ ”

가

Oracle

SYSTEM 가
SYSTEM

가 가
가 SYSTEM
가

SQL CREATE TABLESPACE
CREATE TABLESPACE

가 RB_SEGS(
)
50M

RB_SEGS

```
CREATE TABLESPACE rb_segs
  DATAFILE 'datafilers_1' SIZE 50M
  DEFAULT STORAGE (
    INITIAL 50K
    NEXT 50K
    MINEXTENTS 2
    MAXEXTENTS 50
    PCTINCREASE 0)
  OFFLINE;
```

ORACLE_HOME/dbs

:
가 10-5 “
가”
CREATE TABLESPACE Oracle8i SQL

가 “ ”
SQL
가
SQL

(0 1 , 1 0)

TBS_1
128K 64
CREATE TABLESPACE tbs_1 DATAFILE 'file_1.f'
BITMAP ALLOCATION UNIFORM SIZE 128K;

:
SQL Oracle8i

SYSTEM
SYSTEM

SYSTEM
Oracle 8.1

: SYSTEM
Oracle8i SQL

Oracle

V\$SORT_SEGMENT

CREATE TABLESPACE tablespace TEMPORARY;

ALTER TABLESPACE tablespace TEMPORARY;

: CREATE TABLESPACE ALTER TABLESPACE
Oracle8i SQL Oracle8i Reference
V\$SORT_SEGMENT Oracle8i
Oracle Oracle8i

DBA_TEMP_FILES DBA_DATA_FILES
DBA_DATA_FILES SQL
DATAFILES가 TEMPFILES

:
Reference

DBA_TEMP_FILES

Oracle8i

CREATE TABLESPACE

16M
2K
8,000

```
CREATE TEMPORARY TABLESPACE tbs_1 TEMPFILE 'file_1.f'  
  BITMAP ALLOCATION UNIFORM SIZE 16M;
```

:
Oracle8i SQL

Ora-

가

가

```
ALTER TABLESPACE tbs_1  
  ADD TEMPFILE 'file_1.f';
```

```
ALTER DATABASE TEMPFILE 'temp_file_1.f' OFFLINE;  
ALTER DATABASE TEMPFILE 'temp_file_1.f' ONLINE;
```

TEMP_FILE_1.F 12K

```
ALTER DATABASE TEMPFILE 'temp_file_1.f' RESIZE 12K;
```

```
ALTER DATABASE TEMPFILE 'temp_file_1.f' DROP;
```

:
Oracle8i SQL

가

TABLESPACE
ALTER TABLESPACE

SQL ALTER

```
ALTER TABLESPACE users
DEFAULT STORAGE (
  INITIAL 50K
  NEXT 50K
  MINEXTENTS 2
  MAXEXTENTS 20
  PCTINCREASE 50);
```

가

가

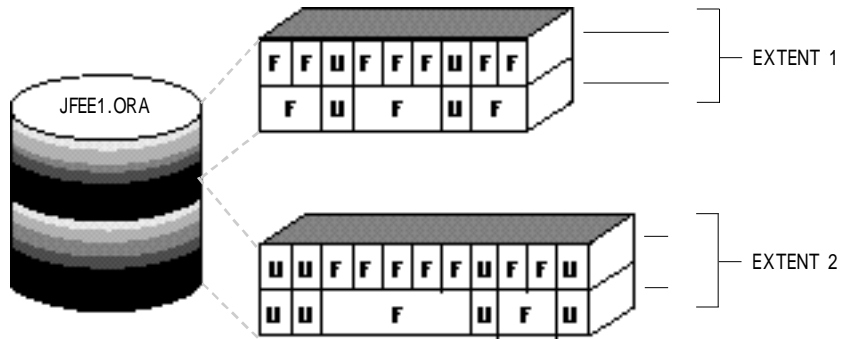
(9-1)

가

SMON()

SMON

9-1 가



F =
 U =

가 가 ()

ALTER TABLESPACE
 가

ALTER TABLESPACE tablespace COALESCE;

SMON

. COALESCE ALTER TABLESPACE 가

가
 FREE_SPACE_COALESCED

DBA_

: DBA_FREE_SPACE_COALESCED

Oracle8i Reference

가

가
가

가

가

가

Oracle

SYSTEM

가

SQL ALTER TABLESPACE
MANAGE TABLESPACE

: ALTER TABLESPACE
OFFLINE NORMAL " "

Oracle

USERS

ALTER TABLESPACE users ONLINE;

가

SQL 가
 ALTER TABLESPACE
 MANAGE TABLESPACE

가

Oracle

가

Oracle

Oracle

가 NOARCHIVELOG

: 가
() ALT-
ER DATABASE OPEN RESETLOGS

USERS

ALTER TABLESPACE users OFFLINE NORMAL;

: 가 21-12
“ ”

WORM

SQL ALTER TABLESPACE ALTER TABLE-
SPACE . FLIGHTS

ALTER TABLESPACE flights READ ONLY

SQL ALTER DATABASE RENA-
ME

. ALTER

TABLESPACE ONLINE OFFLINE

ALTER TABLESPACE...READ ONLY

RESTRICTED SESSION 가 가

SYSTEM 가 SYSTEM 가

COMPATIBLE 7.1.0

COUNT(*) Oracle 가 SELECT 가

:

: Oracle8i

가 SQL ALTER TABLESPACE
 CE ALTER TABLESPACE
 FLIGHTS
 ALTER TABLESPACE flights READ WRITE;

ALTER DATABASE
 DATAFILE ONLINE V\$DATAFILE

WORM

- WORM(Write Once Read
 Many)
- 1.
 2. ALTER TABLESPACE READ ONLY
 3. WORM
 - 4.
 5. WORM
 - 6.

()

SYSTEM

DROP TABLESPACE

:

가

가

가

가

가

가

(DBA_TABLESPACES) INVALID

SQL DROP TABLESPACE
USERS

DROP TABLESPACE users INCLUDING CONTENTS;

가 (,)
[Including Contained Objects]

가 FOREIGN KEY
가 [Cascade Drop of Integrity Constraints]

DROP TABLESPACE CASCADE CONSTRAINTS
FOREIGN KEY

“ : ”

DROP TABLESPACE

Oracle8i SQL

DBMS_SPACE_ADMIN

DBMS_SPACE_ADMIN

DBMS_SPACE_ADMIN

DBMS_SPACE_ADMIN

SEGMENT_VERIFY

SEGMENT_CORRUPT

SEGMENT_DROP_CORRUPT

SEGMENT_DUMP

TABLESPACE_VERIFY

TABLESPACE_REBUILD_BITMAPS

TABLESPACE_FIX_BITMAPS

TABLESPACE_MIGRATE_TO_BITMAP

TABLESPACE_MIGRATE_FROM_BITMAP

:
Reference

Oracle8i Supplied Packages

1

TABLESPACE_VERIFY

가 “ 가 ”

SEGMENT_EXTENT_MAP_DUMP

가

TABLESPACE_MAKE_USED TABLESPACE_FIX_
BITMAPS

2

“ 가 ”

SEGMENT_CHECK_ALL SEGMENT_VERIFY

SEGMENT_EXTENT_MAP_DUMP 가

TABLESPACE_MAKE_FREE TABLESPACE_
FIX_BITMAPS “ 가 ”

SEGMENT_DROP_CORRUPT SEG\$

3

TABLESPACE_VERIFY

T1

T1

T1

SEGMENT_DROP_CORRUPT

T1

SEGMENT_VERIFY
TABLESPACE_FIX_BITMAPS

TABLESPACE_VERIFY

4

REBUILD_MAPS

TABLESPACE_

TABLESPACE_VERIFY

: DBMS_SPACE_ADMIN
Packages Reference

Oracle8i Supplied

가

- 1 :
- 2 : 가
- 3 :
- 4 :

CD

가

가

TSPITR

가

| | | |
|-------------------|--------|------------------------|
| : | 가 | Oracle8i Enter- |
| prise Edition | . | Enterprise, Work group |
| Personal Oracle8i | Oracle | 가 |

가

“ ” ,

OLTP

OLTP

/ 가 /

가

1 :

2 : 가

가

3 :

, ftp CD

. O/S

4 :

: 가

Oracle8i

가

Oracle8i Backup and Recovery Guide

가

tion

Oracle8i Migra-

가

. , Sun Solaris NT
Solaris NT SUN

가

가
- /
-
- 가 REF
- (가)
- 8.0 가

1 :

가 “ ”

가 가

가

LOB 가

LOB

PL/SQL

ts1 ts2 ()

execute dbms_tts.transport_set_check('ts1, ts2', TRUE)

transport_set_check PL/SQL DBMS_TTS PL/SQL DBMS_TTS

PROCEDURE transport_set_check(ts_list IN VARCHAR2, incl_constraints IN BOOLEAN)

ts_list - list of tablespace names separated by comma
incl_constraints - TRUE if one would like to take constraints into consideration. FALSE otherwise.

PL/SQL

TRANSPORT_SET_VIOLATIONS

가

dept_fk

sales

TRANSPORT_SET_VIOLATIONS

select * from transport_set_violations;
VIOLATIONS

Constraint DEPT_FK between table JIM.EMP in tablespace FOO and table JIM.DEPT in tablespace OTHER
Partitioned table JIM.SALES is partially contained in the transportable set

(REF)

REF REF TRANSPORT_SET_CHECK
REF 가 REF

: REF
Fundamentals

Oracle8i Application Developer's Guide -

2 : 가

가

1.

가

```
ALTER TABLESPACE sales READ ONLY;
```

2. Export

가

```
EXP TRANSPORT_TABLESPACE=y TABLESPACES=sales_1, sales_2  
TRIGGERS=y/n CONSTRAINTS=y/n GRANTS=y/n FILE=expdat.dmp
```

: Export

가 "sys as sysdba"

TABLESPACES . FILE

TRIGGERS=n

. TRIGGERS=y

GRANTS=y

GRANTS=n

CONSTRAINTS=y

CONSTRAINTS=n

'y'

3.

4.

가

```
ALTER TABLESPACE sales_1 READ WRITE;
```

가

가

가

1

3 :

. O/S , ftp CD 가

4 :

1. 가

2.

```
IMP TRANSPORT_TABLESPACE=y DATAFILES='/db/sales_jan','/db/sales_feb',...fn
TABLESPACES=sales_1,sales_2,... TTS_OWNERS=dcranney,jfee
FROMUSER=dcranney,jfee TOUSER=smith,williams FILE=expdat.dmp
```

가 “sys as sysdba”
가

```
IMP TRANSPORT_TABLESPACE=y DATAFILES='(/db/staging1.f,/db/staging2.f)'
IMP TRANSPORT_TABLESPACE=y DATAFILES ='/db/staging.f' TABLESPACES=jan
OWNERS=smith
```

DATAFILES
TABLESPACES, TTS_OWNERS, FROMUSER TOUSER
FILE
TABLESPACES

TTS_OWNERS
TTS_OWNERS

FROMUSER TOUSER

가


```

FROM USER TO USER
, FROM USER=dcranney, jfee TO USER=smith, williams
dcranney가 smith가
jfee가
williams가
dcranney jfee smith williams

```

```

ALTER TABLESPACE...READ WRITE
가

```

```

IMP PARFILE='par.f'

```

```

par.f

```

```

TRANSPORT_TABLESPACE=y
DATAFILES=/db/staging.f
TABLESPACES=jan
TT_OWNERS=smith

```

```

init.ora Compatibility 가 8.1 Oracle8i

```

```

ROWID

```

```

REF

```



/
 ROWID
 가
 ROWID . ROWID

REF
 REF Oracle
 REF REF

GRANTS=y
 가

가

TABLE MOVE PARTITION

ALTER

WITHOUT VALIDATION

가
9-27 “

가

LOB

가

BFILE 가

BFILE

Oracle 8.0

가

가
dbms_aqadm.start_queue()

PL/SQL

가

가

. , Oracle 가 가

/

:

가

“sales”

```
CREATE TABLE sales (invoice_no NUMBER,  
sale_year INT NOT NULL,  
sale_month INT NOT NULL,  
sale_day INT NOT NULL)  
PARTITION BY RANGE (sale_year, sale_month, sale_day)  
(partition jan98 VALUES LESS THAN (1998, 2, 1),  
partition feb98 VALUES LESS THAN (1998, 3, 1),  
partition mar98 VALUES LESS THAN (1998, 4, 1),  
partition apr98 VALUES LESS THAN (1998, 5, 1),  
partition may98 VALUES LESS THAN (1998, 6, 1),  
partition jun98 VALUES LESS THAN (1998, 7, 1));
```

가

```
CREATE INDEX sales_index ON sales(invoice_no) LOCAL;
```

sales

```

    가 1998 7 7
    ts_jul sales
    가
    CREATE TABLE...AS SELECT
    . jul_sales jul_sales sales
    jul_sale_index
    ts_jul
    sales 7 가

```

```

ALTER TABLE sales ADD PARTITION jul98 VALUES LESS THAN (1998, 8, 1);

```

```

    jul_sales sales

```

```

ALTER TABLE sales ADD PARTITION
WITHOUT VALIDATION;

```

```

    7 jul98
    . jul_sale_index sales

```

```

WITHOUT VALIDATION

```

```

sales (
)
    가
    , sales jan98

```

```

ORA-19728: data object number conflict between table JUL_SALES and
partition JAN98 in table SALES

```

```

ALTER TABLE sales MOVE PARTITION jan98;

```

7 jul_sales jul_sale_index

CD

가 CD 가 CD 가 CD

CD CD , NT D: catalog.f CD expdat.dmp가 가

IMP TRANSPORT_TABLESPACE=y DATAFILES='D:\catalog.f' FILE='D:\expdat.dmp'

가 CD Oracle CD . CD

CD Oracle (READ_ ONLY_OPEN_DELAYED TRUE) READ_ONLY_ OPEN_DELAYED TRUE Oracle 가 CD CD가 READ_ONLY_OPEN_DELAYED TRUE

가

USER_EXTENTS, DBA_EXTENTS
 USER_SEGMENTS, DBA_SEGMENTS
 USER_FREE_SPACE, DBA_FREE_SPACE
 DBA_USERS
 DBA_TS_QUOTAS
 USER_TABLESPACES, DBA_TABLESPACES
 DBA_DATA_FILES
 V\$DATAFILE

```

      SYSTEM    USERS
     . USERS      FILE1(100MB)  FILE2(200MB)
  
```

:

DBA_TABLESPACES

```

SELECT tablespace_name "TABLESPACE",
       initial_extent  "INITIAL_EXT",
       next_extent    "NEXT_EXT",
       min_extents    "MIN_EXT",
       max_extents    "MAX_EXT",
       pct_increase
FROM sys.dba_tablespaces;
  
```

| TABLESPACE | INITIAL_EXT | NEXT_EXT | MIN_EXT | MAX_EXT | PCT_INCREASE |
|------------|-------------|----------|---------|---------|--------------|
| SYSTEM | 10240000 | 10240000 | 1 | 99 | 50 |
| USERS | 10240000 | 10240000 | 1 | 99 | 50 |

:

DBA_DATA_FILES

가

가

:

Oracle®i Backup and Recovery Guide

가 . 가
" " . Oracle8
가
가 가
(가
1023)
SYSTEM
가
가
Oracle Oracle

Oracle

. 가

1023

:

Parallel Server
Concepts and Administration

Oracle8i Parallel Server

MAXDATAFILES

Oracle8i SQL

SYSTEM

7M

Oracle

SYSTEM

가

가

가

가

AUTOEXTENSIBLE 가 DBA_DATA_FILES

SQL

CREATE DATABASE
CREATE TABLESPACE
ALTER TABLESPACE

SQL ALTER DATABASE

FILENAME2 USERS
가

```
ALTER TABLESPACE users  
ADD DATAFILE 'filename2' SIZE 10M  
AUTOEXTEND ON  
NEXT 512K  
MAXSIZE 250M;
```

NEXT 가 가 MAXSIZE

FILENAME2

```
ALTER DATABASE DATAFILE 'filename2'  
AUTOEXTEND OFF;
```

: SQL Oracle8i
SQL

ALTER DATABASE

가 가

FILENAME2

250M

가

FILENAME2

```
ALTER DATABASE DATAFILE 'filename2'
RESIZE 100M
```

=====

Migration

Oracle8i

ALTER DATABASE

Oracle8i SQL

가

가

ARCHIVELOG

NOARCHIVELOG

) , Oracle (가)

=====

: SYSTEM

=====

ALTER DATABASE DATAFILE
ALTER
DATABASE 가

ARCHIVELOG

SQL ALTER DATABASE
DATAFILE
: ALTER DATABASE
ARCHIVELOG
NOARCHIVELOG

```
ALTER DATABASE DATAFILE 'filename' ONLINE;
```

:
Oracle8i Backup and Recovery Guide

NOARCHIVELOG

가 NOARCHIVELOG
ALTER DATABASE DATAFILE OFFLINE DROP
가 NOARCHIVELOG

```
ALTER DATABASE DATAFILE 'filename' OFFLINE DROP;
```

. Oracle

```
FILENAME2) ( , TBSP1 FILENAME1
가 ( , TBSP1 FILE1
TBSP2 FILE2)
=====
: SYSTEM
SYSTEM
=====
```

ALTER TABLESPACE

1. SYSTEM
- 2.
- 3.

4. SQL ALTER TABLESPACE RENAME DATAFILE

FILENAME1 FILENAME2 FILENAME3
FILENAME4

```
ALTER TABLESPACE users  
  RENAME DATAFILE 'filename1', 'filename2'  
  TO 'filename3', 'filename4';
```

DBA_DATA_FILES

SQL ALTER DATABASE RENAME FILE

SYSTEM

가

SYSTEM
DATABASE

ALTER

1. 가

2.

3.

4. SQL ALTER DATABASE

FILENAME1 FILENAME2 FILENAME3
FILENAME4

```
ALTER DATABASE  
  RENAME FILE 'filename1', 'filename2'  
  TO 'filename3', 'filename4';
```

DBA_DATA_FILES

:
가
USERS 가

USERS 가

Enterprise Manager

1.

DBA_DATA_FILES USERS

```
SELECT file_name, bytes FROM sys.dba_data_files  
WHERE tablespace_name = 'USERS';
```

```
FILE_NAME          BYTES  
-----  
FILENAME1          102400000  
FILENAME2          102400000
```

FILENAME1 FILENAME2
1MB

2.

가

3.

4.

FILENAME1 FILENAME2 FILENAME3 FILENAME4

: HOST

5. Oracle

USERS

FILENAME3 FILENAME4 FILENAME1 FILENAME2

SPACE...RENAME DATAFILE 가 ALTER TABL-
ALTER DATABASE...RENAME FILE 가

6.

USERS

가

가
가

7.

가

: DBA_DATA_FILES
Reference

Oracle8i

9-10

”

Oracle

DB_BLOCK_CHECKSUM TRUE DB_BLOCK_CHECKSUM

DB_BLOCK_CHECKSUM FALSE

Oracle

DBW0

Oracle ORA-01578

```
-----  
: DB_BLOCK_CHECKSUM TRUE  
가  
TRUE  
-----
```

USER_EXTENTS, DBA_EXTENTS
USER_SEGMENTS, DBA_SEGMENTS
USER_FREE_SPACE, DBA_FREE_SPACE
DBA_USERS
DBA_TS_QUOTAS
USER_TABLESPACES, DBA_TABLESPACES
DBA_DATA_FILES
V\$DATAFILE

SYSTEM USERS
. USERS FILE1(100MB) FILE2(200MB)
V\$DATAFILE

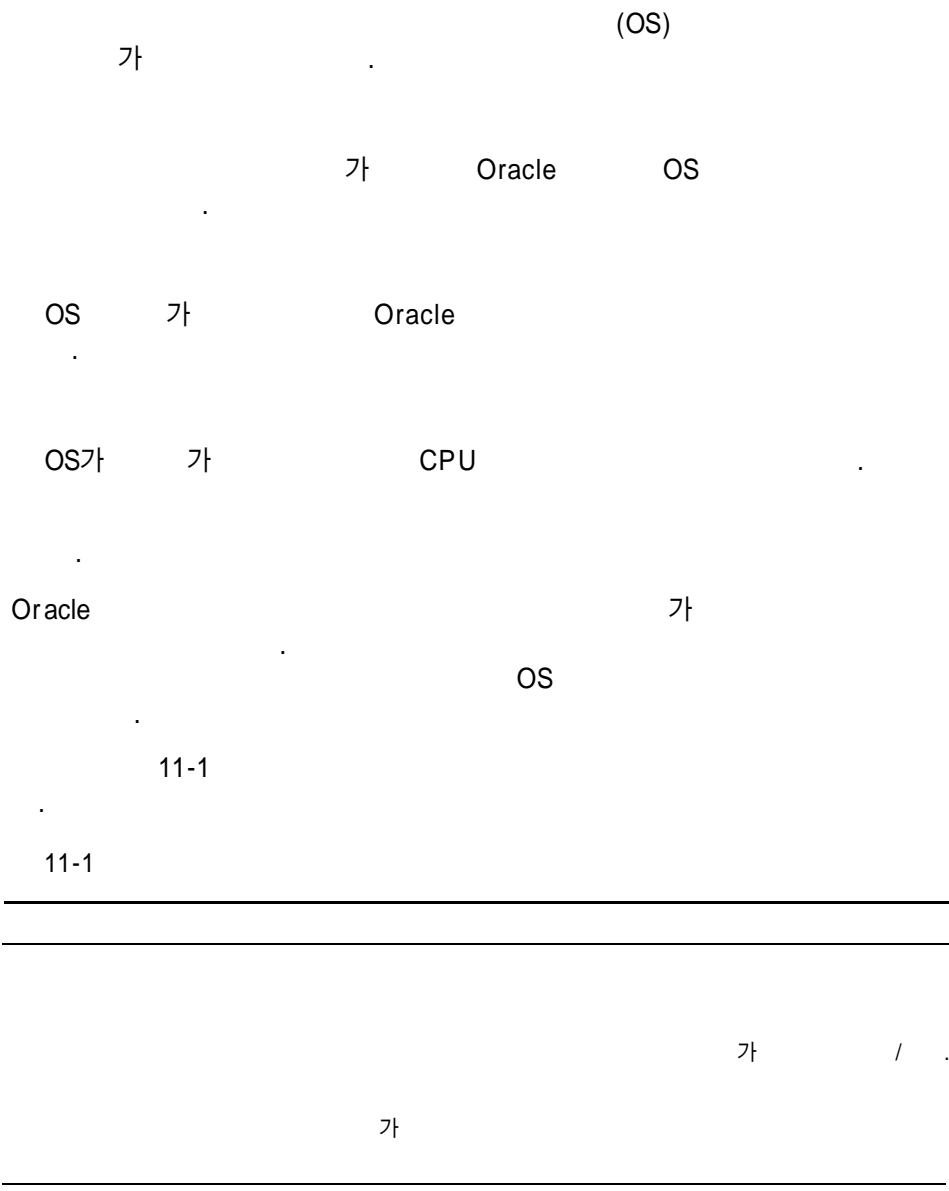
```
SELECT name,  
       file#,  
       status,  
       checkpoint_change# "CHECKPOINT" FROM V$datafile;
```

| NAME | FILE# | STATUS | CHECKPOINT |
|-----------|-------|---------|------------|
| ----- | ----- | ----- | ----- |
| filename1 | 1 | SYSTEM | 3839 |
| filename2 | 2 | OFFLINE | 3782 |
| filename3 | 3 | OFFLINE | 3782 |

```

FILE#                . SYSTEM
                    file 1 . STATUS
                    SYSTEM
가                  . SYSTEM
                  SYSTEM
                  ONLINE . SYSTEM
                  OFFLINE RECOVER . CHECKP-
OINT                SCN                .

```

DBMS_RESOURCE_MANAGER
DBMS_RESOURCE_MANAGER_PRIVS

DBMS_RESOURCE_MANAGER

DBMS_RESOURCE_MANAGER

SYSTEM ADMIN 가 SYSTEM

grant_system_privilege(grantee_name in varchar2, admin_option in boolean)
revoke_system_privilege (revokee_name in varchar2)

11-5 “ ”

create_plan(plan in varchar2, comment in varchar2,
q1nth in varchar2 DEFAULT 'EMPHASIS',
max_active_sess_target_nth in varchar2 DEFAULT
'MAX_ACTIVE_SESS_ABSOLUTE',
parallel_degree_limit_nth in varchar2 DEFAULT
'PARALLEL_DEGREE_LIMIT_ABSOLUTE')
update_plan(plan in varchar2, new_comment in varchar2)
DEFAULT NULL, new_q1nth in varchar2
DEFAULT NULL, new_max_active_sess_target_nth in
varchar2 DEFAULT NULL,

```

new_parallel_degree_limit_mth in varchar2
DEFAULT NULL)
delete_plan(plan in varchar2)
delete_plan_cascade(plan in varchar2)

```

```

delete_plan                                가
                                           . delete_plan_cascade
                                           ,
                                           . delete_plan_
cascade                                    가
update_plan

```

```

cpu_method ≙ EMPHASIS '
parallel_degree_limit_mth ≙ PARALLEL_DEGREE_LIMIT_ABSOLUTE '

```

```

create_consumer_group(consumer_group in varchar2,
comment in varchar2, cpu_mth in varchar2
DEFAULT 'ROUND-ROBIN')
update_consumer_group(consumer_group in varchar2,
new_comment in varchar2 DEFAULT NULL,
new_cpu_mth in varchar2 DEFAULT NULL)
delete_consumer_group(consumer_group in varchar2)

```

```

CPU      ROUND-ROBIN      cpu_mth

```

```

update_consumer_group

```

```

create_plan_directive(plan in varchar2, group_or_subplan
in varchar2, comment in varchar2, cpu_pl in number
DEFAULT NULL, cpu_p2 in number

```

```

DEFAULT NULL, cpu_p3 in number
DEFAULT NULL, cpu_p4 in number
DEFAULT NULL, cpu_p5 in number
DEFAULT NULL, cpu_p6 in number
DEFAULT NULL, cpu_p7 in number
DEFAULT NULL, cpu_p8 in number
DEFAULT NULL, max_active_sess_target_pl in number
DEFAULT NULL, parallel_degree_limit_pl in number DEFAULT NULL)
update_plan_directive(plan in varchar2, group_or_subplan
    in varchar2, new_comment in varchar2
DEFAULT NULL, new_cpu_p1 in number
DEFAULT NULL, new_cpu_p2 in number
DEFAULT NULL, new_cpu_p3 in number DEFAULT NULL, new_cpu_p4 in number
DEFAULT NULL, new_cpu_p5 in number DEFAULT NULL, new_cpu_p6 in number
DEFAULT NULL, new_cpu_p7 in number DEFAULT NULL, new_cpu_p8 in number
DEFAULT NULL, max_active_sess_target_pl in number
DEFAULT NULL, new_parallel_degree_limit_pl in number
DEFAULT NULL)
delete_plan_directive(plan in varchar2, group_or_subplan
    in varchar2)

```

NULL .

update_plan_directive

“ ”

. (.)

,

```

dbms_resource_manager.create_pending_area
dbms_resource_manager.validate_pending_area
dbms_resource_manager.clear_pending_area
dbms_resource_manager.submit_pending_area

```

: submit_pending_area 가

```

validate
.
.
1.
2.   가
3.           가           가
4.           100
5.           가
6.   parallel_degree_limit_pl
      . (
      .)
7.   32           가
      32   가
      . ,
8.           가
9.   가 OTHER_GROUPS           가
      OTHER_GROUPS

" (orphan)" (           가
)
      validate submit
      validate submit

```

```
. submit_pending_area ( )
```

```
    : validate_pending_area, submit_pending_area  
    , submit_pending_area  
    validate_pending_area
```

11-1

```
begin  
dbms_resource_manager.create_pending_area();  
dbms_resource_manager.create_plan(plan => 'BUGDB_PLAN',  
    comment => 'Resource plan/method for bug users' sessions');  
dbms_resource_manager.create_plan(plan => 'MAILDB_PLAN',  
    comment => 'Resource plan/method for mail users' sessions');  
dbms_resource_manager.create_plan(plan => 'MDB_PLAN',  
    comment => 'Resource plan/method for bug and mail users' sessions') ;  
dbms_resource_manager.create_consumer_group(consumer_group => 'Bug_Online_  
group',  
    comment => 'Resource consumer group/method for online bug users' sessions');  
dbms_resource_manager.create_consumer_group(consumer_group => 'Bug_Batch_group',  
    comment => 'Resource consumer group/method for bug users' sessions who run  
batch jobs');  
dbms_resource_manager.create_consumer_group(consumer_group => 'Bug_Maintenance_  
group',  
    comment => 'Resource consumer group/method for users' sessions who maintain  
the bug db');  
dbms_resource_manager.create_consumer_group(consumer_group => 'Mail_users_  
group',  
    comment => 'Resource consumer group/method for mail users' sessions');  
dbms_resource_manager.create_consumer_group(consumer_group => 'Mail_Postman_  
group',  
    comment => 'Resource consumer group/method for mail postman');  
dbms_resource_manager.create_consumer_group(consumer_group => 'Mail_Maintenance_  
group',  
    comment => 'Resource consumer group/method for users' sessions who maintain  
the mail db');  
dbms_resource_manager.create_plan_directive(plan => 'BUGDB_PLAN', group_or_  
subplan => 'Bug_Online_group',  
    comment => 'online bug users' sessions at level 0', quip1 => 80, quip2 => 0,  
parallel_degree_limit_pl => 8);  
dbms_resource_manager.create_plan_directive(plan => 'BUGDB_PLAN', group_or_  
subplan => 'Bug_Batch_group',  
    comment => 'batch bug users' sessions at level 0', quip1 => 20, quip2 => 0,  
parallel_degree_limit_pl => 2);  
dbms_resource_manager.create_plan_directive(plan => 'BUGDB_PLAN', group_or_  
subplan => 'Bug_Maintenance_group',  
    comment => 'bug maintenance users' sessions at level 1', quip1 => 0,  
quip2 => 100, parallel_degree_limit_pl => 3);
```

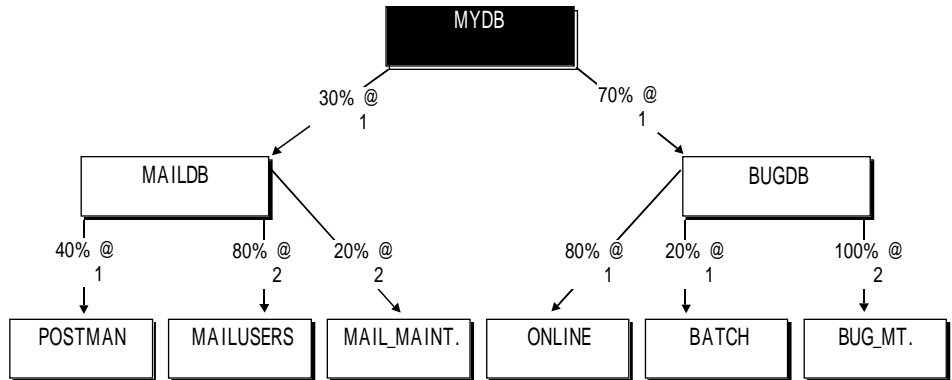
```

dbms_resource_manager.create_plan_directive(plan =>          'MAILDB_PLAN',      group_
or_subplan =>      'Mail_Postman_group',
comment =>        'mail postman at level 0', cpu_pl => 40, cpu_p2 => 0,
parallel_degree_limit_pl => 4);
dbms_resource_manager.create_plan_directive(plan =>          'MAILDB_PLAN',
group_or_subplan =>      'Mail_users_group',
comment =>        'mail users' sessions at level 1', cpu_pl => 0, cpu_p2 => 80,
parallel_degree_limit_pl => 4);
dbms_resource_manager.create_plan_directive(plan =>          'MAILDB_PLAN',
group_or_subplan =>      'Mail_Maintenance_group',
comment =>        'mail maintenance users' sessions at level 1', cpu_pl => 0,
cpu_p2 => 20, parallel_degree_limit_pl => 2);
dbms_resource_manager.create_plan_directive(plan              => 'MDB_PLAN',      group_or_
subplan =>          'MAILDB_PLAN',
comment=>          'all mail users' sessions at level 0', cpu_pl => 30);
dbms_resource_manager.create_plan_directive(plan              => 'MDB_PLAN',      group_or_
subplan =>          'BUGDB_PLAN',
comment =>          'all bug users' sessions at level 0', cpu_pl => 70);
dbms_resource_manager.validate_pending_area();
dbms_resource_manager.submit_pending_area();
end;
/

submit_pending_area          validate_pending_
area                          .

```

11-1



DATABASE_RESOURCE_MANAGER

```
set_initial_consumer_group(user in varchar2, consumer_group in varchar2)
```

```
가  
가 PUBLIC  
( ALTER USER DEFAULT ROLE )
```

```
DEFAULT_CONSUMER_GROUP  
CONSUMER_GROUP PUBLIC 가 DEFAULT_
```

```
DEFAULT_CONSUMER_GROUP  
DEFAULT_CONSUMER_GROUP
```

```
switch_consumer_group_for_sess(session_id in number, session_serial  
in number, consumer_group in varchar2)
```

ID 가

```
switch_consumer_group_for_user(user in varchar2, class in varchar2)
```

(PQ)

:
Reference

Oracle8i

DBMS_RESOURCE_MANAGER_PRIVS

DBMS_RESOURCE_MANAGER_PRIVS

```
grant_switch_consumer_group_for_sess(session_id in number, session_serial  
in number, consumer_group in varchar2, grant_option in boolean)
```

가

가

가

PUBLIC

grant_option 가 TRUE

```
revoke_switch_consumer_group(revokee_name in varchar2, consumer_group  
in varchar2)
```

```
DEFAULT_CONSUMER_GROUP 가
```

```
가
```

```
PUBLIC
```

```
PUBLIC
```

DBMS_SESSION

```
DBMS_SESSION
```

```
switch_current_consumer_group(new_consumer_group in varchar2,  
old_consumer_group in varchar2, initial_group_on_error in boolean)
```

```
가
```

```
가
```

```
가
```

```
가
```

```
initial_group_on_error
```

```
가 TRUE
```

```
가
```

V\$SESSION
V\$MYSESSION
V\$RSRC_CONSUMER_GROUP
V\$RSRC_PLAN
V\$RSRC_CONSUMER_GROUP_CPU_MTH
V\$RSRC_PLAN_CPU_MTH
V\$PARALLEL_DEGREE_LIMIT_MTH

DBA_RSRC_CONSUMER_GROUP_PRIVS
DBA_RSRC_MANAGER_SYSTEM_PRIVS
DBA_RSRC_CONSUMER_GROUPS
DBA_RSRC_PLAN_DIRECTIVES
DBA_RSRC_PLANS
USER_RSRC_CONSUMER_GROUP_PRIVS
USER_RSRC_MANAGER_SYSTEM_PRIVS
DBA_USERS
USERS_USERS

: Oracle8i Reference

13 18

PCTFREE
PCTUSED
PCTUSED PCTFREE
PCTFREE PCTUSED

PCTFREE

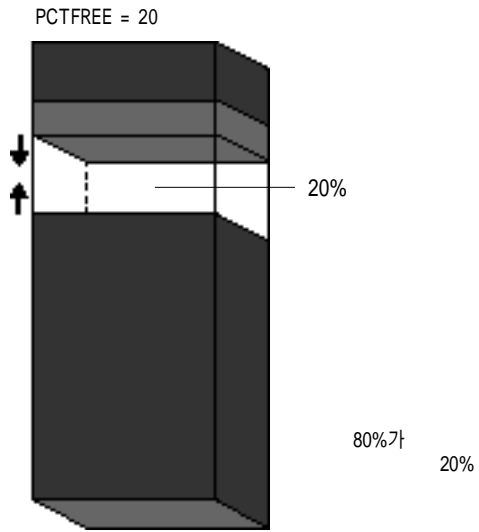
PCTFREE ()
, CREATE TABLE

PCTFREE 20

가 20% 가

12-1 PCTFREE

12-1 PCTFREE



PCTFREE

PCTFREE

PCTFREE 10% PCTFREE PCTUSED 100
 0 99 PCTFREE

PCTFREE

가 (

)

PCTFREE가

PCTFREE



()

가

PCTFREE가

PCTFREE

가
가

PCTFREE

PCTFREE

가

PCTFREE

가

가 가

PCTFREE

PCTFREE

PCTFREE

PCTFREE

PCTUSED

PCTFREE
PCTUSED

, CREATE TABLE

PCTUSED 40

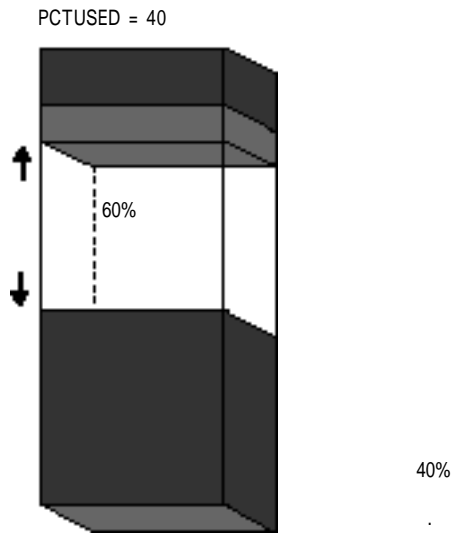
(

PCTFREE
12-2

가

39%
)

12-2 PCTUSED



PCTUSED

PCTUSED

40%
PCTUSED

PCTFREE

PCTUSED
99

PCTFREE

100

PCTUSED 0

PCTUSED

PCTUSED

UPDATE DELETE

가

가

PCTUSED

INSERT UPDATE

가

PCTUSED PCTFREE

PCTFREE PCTUSED

PCTFREE PCTUSED 100

100 Oracle PCTFREE
가

PCTUSED PCTFREE

100 PCTFREE PCTUSED 가 (PCTUSED가 75
PCTFREE 20)

PCTFREE PCTUSED

PCTFREE PCTUSED

1 : 가 UPDATE

: PCTFREE = 20
PCTUSED = 40

2 : INSERT DELETE ,
가 UPDATE

: PCTFREE = 5
PCTUSED = 60

: UPDATE 가
PCTFREE 5
PCTUSED 60 DELETE

3 :
가

: PCTFREE = 5
PCTUSED = 40

: PCTFREE 5

INITTRANS MAXTRANS

LOB

()
, , ()
()

가 .

INITIAL

가

: 5
: 2 ()
:

NEXT

NEXT (1 + PCTINCREASE/100) * NEXT
가
NEXT (1 + PCTINCREASE/100) * NEXT
: 5
: 1
:

MAXEXTENTS

:
: 1()
:

MINEXTENTS

가
: 1()
: 1()
:

PCTINCREASE

PCTINCREASE가 0
PCTINCREASE가 0 NEXT가
PCTINCREASE 가
NEXT 1 + PCTINCREASE/100 (NEXT)
가
PCTINCREASE
가
:
: 50(%)
: 0(%)
:

INITRANS

DML

.

1

2

MAXTRANS

DML

가

. INITRANS

가

MAXTRANS

MAXTRANS

255

:

Oracle8i SQL

INITRANS MAXTRANS

,

가

INITRANS

INITRANS (가

가) MAXTRANS

가

가

MINEXTENTS

CREATE ALTER STORAGE

CREATE CLUSTER ALTER CLUSTER CREATE ALTER STORAGE

INDEX ALTER INDEX STORAGE CREATE

ENABLE ALTER INDEX CREATE TABLE ALTER TABLE STORAGE

PCTFREE 가
PCTUSED

LOB

CREATE TABLE NOCACHE, NOLOGGING, PCTVERSION LOB
LOB

: LOB

Oracle8i SQL

가

INITIAL MINEXTENTS

' NEXT '

가

NEXT

PCTINCREASE

가

NEXT PCTINCREASE가
NEXT PCTINCREASE

가

SQL

1. ALTER TABLE/CLUSTER/FLASHBACK LOG/INDEX
/ROLLBACK SEGMENT
2. CREATE TABLE/CLUSTER/FLASHBACK LOG/CREATE
INDEX/ROLLBACK SEGMENT
3. ALTER TABLESPACE
4. CREATE TABLESPACE
5. Oracle

가

가

가

Oracle

```
CREATE TABLE test_storage  
( . . . )  
STORAGE (INITIAL 100K NEXT 100K  
MINEXTENTS 2 MAXEXTENTS 5  
PCTINCREASE 50);
```

```
DB_BLOCK_SIZE가 2K  
TEST_STORAGE  
USER_SEGMENTS DBA_SEGMENTS NEXT  
가
```

12-1

| # | | | NEXT | |
|---|-----|--------|------|--------|
| 1 | 50 | 102400 | 50 | 102400 |
| 2 | 50 | 102400 | 75 | 153600 |
| 3 | 75 | 153600 | 113 | 231424 |
| 4 | 115 | 235520 | 170 | 348160 |
| 5 | 170 | 348160 | 255 | 522240 |

```
NEXT PCTINCREASE ALTER TABLE ALTER  
STORAGE NEXT TEST_
```

```
ALTER TABLE test_storage STORAGE (NEXT 500K);
```

KEEP ()
MINEXTENTS가 MINEXTENTS
가 MINEXTENTS

:
Oracle8i SQL

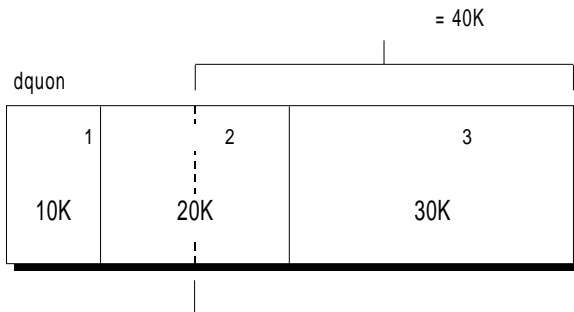
DBA_FREE_SPACE
Oracle8i Reference

:
가 Oracle8i
Reference ALTER...DEALLOCATE UNUSED

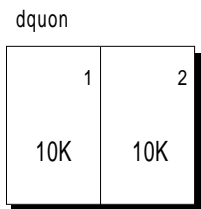
1
DQUON (12-3)
10K, 20K, 30K
40K
DQUON 10K

ALTER TABLE dquon DEALLOCATE UNUSED;

12-3



- ALTER TABLE dquon DEALLOCATE UNUSED; -----

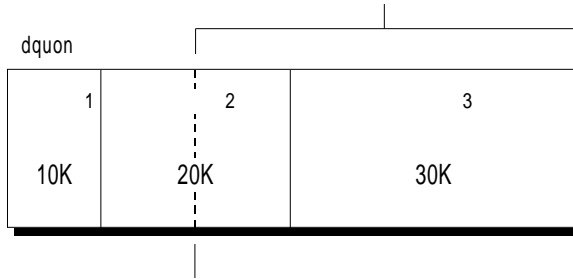


DQUON
(12-4)

KEEP 10K

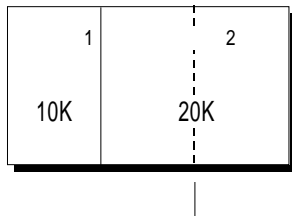
12-4

, KEEP 10K
= 40K



- ALTER TABLE dquon DEALLOCATE UNUSED KEEP 10K; -----

dquon



DQUON

10K

KEEP 20K

ALTER TABLE dquon DEALLOCATE UNUSED KEEP 20K;

2

ALTER TABLE DQUON DEALLOCATE UNUSED
10K

가

30K가

ALTER...STORAGE [NEXT]

3

DEALLOCATE MINEXTENTS
(가)

```

, DQUON      MINEXTENTS  2      .      1  2
      .      MINEXTENTS  3      ALTER TABLE DQUON
DEALLOCATE UNUSED
TABLE DQUON DEALLOCATE UNUSED KEEP 10K
      MINEXTENTS  2      .

```

```

CHAR  VARCHAR2      Oracle
가      ASCII(American Standard
Code for Information Interchange) EBCDIC(Extended
Binary Coded Decimal Interchange Code)
      Oracle 가
      (NLS)

```

```

CHAR
CHAR      1      255      가 ( 가
      ) CHAR      1

```

```

VARCHAR2      가
      VARCHAR2      1      4000
      가 ( 가      ) VARCHAR2
      가

```

```

NUMBER
      . 1 x 10-130      9.99..9 x 1025(38      )
      , -1 x 10-130      -9.99..9 x 1025(38      )
      0

```

```

NUMBER
      . 38
      가

```

column_name NUMBER (*, scale)

38 가

DATE DATE
7

LONG LONG 2 가
가 LONG

LONG
: LONG LOB

Oracle8i Application Developer's
Guide - Large Objects (LOBs)

RAW LONG RAW Net8 Import
RAW /Export 가 RAW LONG RAW
VARCHAR2 Net8
가 Export/Import CHAR,
VARCHAR2 LONG
RAW LONG RAW

ROWID
ROWID) (ROWID가

가 . ROWID
SELECT SQL*Plus
DESCRIBE ROWID SQL

ROWID

. ROWID

VARCHAR2 16

block.slot.file

. block

row

file

ROWID

. Import/Export

가

ROWID

: NLS
Language Support Guide

Oracle8i National La-

Oracle8i SQL

Oracle

12-2 Oracle

12-2 Oracle

| | | () |
|--------------|-------------|---------------------------|
| CHAR (size) | size | 1 2000 |
| NCHAR (size) | 가 , size | (?) size 2000 size |

12-2 Oracle

()

| | | () |
|---------------------|--|--|
| VARCHAR2 (size) | size 가 | size 4000 size 1 . VARCHAR2 size . |
| NVARCHAR2 (size) | 가 , size 가 | size 4000 . NVARCHAR2 size . |
| NUMBER (p, s) | p s , p 1 38 . s -84 127 . | 가 . 21 |
| DATE | B.C. 4712, 1 1 A.D. 4712, 12 31 DD-MON-YY . | 7 |
| LONG | 가 | $2^{31} - 1$ 2 가 가 . |
| RAW (size) | size | 2000 가 size . RAW size . |
| LONG RAW | 가 | 2 가 가 가 . |
| ROWID | 16 ROWID | 6 |

12-2 Oracle ()

| | | () |
|------------------|------|-------------------------|
| UROWID[(size)] | 16 | size UROWID . 4000 . |
| CHAR(size) | size | size 2000 . size 1 . |



: Oracle8i

가
(VLDB) 가
VLDB 가
가
S, MAXTRANS, TABLESPACE PCTFREE, PCTUSED, INITRAN-
가 STORAGE

가
(
가
:
Oracle8i
가

가 () SALE_YEAR=1998, SALE_MONTH=8, SALE_DAY=18
 (1998, 8, 18) 가
 TSC . SALE_YEAR=1998, SALE_MONTH=8, SALE_DAY=1
 (1998, 8, 1) 가
 TSC

```
CREATE TABLE sales
( invoice_no NUMBER,
  sale_year INT NOT NULL,
  sale_month INT NOT NULL,
  sale_day INT NOT NULL )
PARTITION BY RANGE (sale_year, sale_month, sale_day)
( PARTITION sales_q1 VALUES LESS THAN (1998, 04, 01)
  TABLESPACE tsa,
  PARTITION sales_q2 VALUES LESS THAN (1998, 07, 01)
  TABLESPACE tsb,
  PARTITION sales_q3 VALUES LESS THAN (1998, 10, 01)
  TABLESPACE tsc,
  PARTITION sales_q4 VALUES LESS THAN (1999, 01, 01)
  TABLESPACE tsd );
```

ALTER TABLE...MERGE PARTITIONS

가 가

: Oracle8i

CREATE TABLE...PARTITION

Oracle8i SQL

```
CREATE TABLE scubagear(  
    id NUMBER,  
    name VARCHAR2 (60))  
TABLESPACE ocean  
STORAGE (INITIAL 19k)  
PARTITION BY HASH (id)  
PARTITIONS 4;
```

```
CREATE TABLE scubagear (...)  
STORAGE (INITIAL 10k)  
PARTITION BY HASH (id) PARTITIONS 16  
STORE IN (h1to4, h4to8, h8to12, h12to16);
```

```
CREATE TABLE product(...)  
STORAGE (INITIAL 10k)  
PARTITION BY HASH (id)  
    (PARTITION p1 TABLESPACE h1,  
    PARTITION p2 TABLESPACE h2);
```

```
CREATE INDEX bcd_type ON scubagear(id) LOCAL  
PARTITIONS 4 STORE IN (ix1, ix2);
```

```
CREATE INDEX bcd_type ON scubagear(id) LOCAL  
(PARTITION p1 TABLESPACE ix1, PARTITION p2 TABLESPACE ix2,  
PARTITION p3 TABLESPACE ix3, PARTITION p4 TABLESPACE ix4);
```

ALTER TABLE...SPLIT PARTITION
ALTER TABLE...DROP PARTITION
ALTER TABLE...MERGE PARTITIONS

가

가

가

ALTER TABLE scubagear COALESCE PARTITION;

가

가

ALTER TABLE scubagear ADD PARTITION;
ALTER TABLE scubagear
ADD PARTITION p3 TABLESPACE t3;

가

가

: CREATE TABLE, PARTITION...BY HASH ALTER TABLE
Oracle8i SQL
Oracle8i

```

( )
( )
( )

```

STORE IN

```

CREATE TABLE scubagear (equipno NUMBER, equipname VARCHAR(32), price
NUMBER)
PARTITION BY RANGE (equipno) SUBPARTITION BY HASH (equipname)
SUBPARTITIONS 8 STORE IN (ts1, ts3, ts5, ts7)
(PARTITION p1 VALUES LESS THAN (1000),
PARTITION p2 VALUES LESS THAN (2000),
PARTITION p3 VALUES LESS THAN (MAXVALUE));

```

```

CREATE TABLE scubagear (equipno NUMBER, equipname VARCHAR(32), price
NUMBER)
PARTITION BY RANGE (equipno) SUBPARTITION BY HASH (equipname)
SUBPARTITIONS 8 STORE IN (ts1, ts3, ts5, ts7)
(PARTITION p1 VALUES LESS THAN (1000) PCTFREE 40,
PARTITION p2 VALUES LESS THAN (2000) STORE IN (ts2, ts4, ts6,
ts8),
PARTITION p3 VALUES LESS THAN (MAXVALUE)
(SUBPARTITION p3_s1 TABLESPACE ts4,
SUBPARTITION p3_s2 TABLESPACE ts5));

```

```

( )
( )

```

```
        (          )
    (          )
가(          )
    (          )
    (          )
        (          )
```

```
ALTER INDEX scuba
    MODIFY SUBPARTITION bcd_types UNUSABLE;
```

MODIFY SUBPARTITION

```
ALTER INDEX scuba
    REBUILD SUBPARTITION bcd_types
    TABLESPACE tbs23 PARALLEL (DEGREE 2);
```

```
ALTER INDEX scuba RENAME SUBPARTITION bcd_types TO bcd_brands;
```

가 가

```
ALTER INDEX scuba RENAME SUBPARTITION sys_subp3254 TO bcd_types;
```

```
ALTER TABLE diving RENAME SUBPARTITION locations_us
    TO us_monterey;
```

```
ALTER TABLE diving
  EXCHANGE SUBPARTITION locations_us
  WITH TABLE us_ca INCLUDING INDEXES;
```

가 가
가

```
ALTER TABLE diving MODIFY PARTITION locations_us
  ADD SUBPARTITION us_monterey TABLESPACE us1;
```

RDBMS가

ALTER TABLE MODIFY PARTITION
N ADD SUBPARTITION

```
ALTER TABLE diving MODIFY PARTITION us_locations
  COALESCE PARTITION;
```

```
ALTER TABLE scuba_gear MOVE SUBPARTITION bcd_types
  TABLESPACE tbs23 PARALLEL (DEGREE 2);
```

```
ALTER TABLE diving
  TRUNCATE SUBPARTITION us_locations
  DROP STORAGE;
```

:

Oracle8i SQL

```

TABLE PARTITION . CREATE
TABLE . SALE_YEAR=1998, SALE_MONTH=7, SALE_
DAY=18 (1998, 7, 18) 가 TSC
. SALE_YEAR=1998, SALE_MONTH=7, SALE_DAY=1
(1998, 7, 1) 가

```

```

CREATE TABLE sales
( invoice_no NUMBER,
  sale_year INT NOT NULL,
  sale_month INT NOT NULL,
  sale_day INT NOT NULL )
PARTITION BY RANGE ( sale_year, sale_month, sale_day)
( PARTITION sales_q1 VALUES LESS THAN ( 1998, 04, 01 )
  TABLESPACE tsa,
  PARTITION sales_q2 VALUES LESS THAN ( 1998, 07, 01 )
  TABLESPACE tsb,
  PARTITION sales_q3 VALUES LESS THAN ( 1998, 10, 01 )
  TABLESPACE tsc,
  PARTITION sales_q4 VALUES LESS THAN ( 1999, 01, 01 )
  TABLESPACE tsd);

```

```

: CREATE TABLE PARTITION Oracle8i
SQL

```

Oracle8i

가

```

: DDL      SQL      Oracle8i SQL      .
          Oracle8i Reference      .
          ,      Oracle8i Utilities      .
          Oracle8i      .

```

```

ALTER TABLE      MOVE PARTITION
.
.
.

```

```

          ALTER TABLE/INDEX...MODIFY PARTITION      MOD-
IFY PARTITION      TABLESPACE      .
          MOVE PARTITION      .

```

```

MOVE PARTITION      .
DBA      가      (
          )      . DBA      .

```

```

ALTER TABLE parts MOVE PARTITION depot2
TABLESPACE ts094 NOLOGGING;

```

가 .
 MOVE PARTITION
 가 . MOVE PARTITION
 .
 MOVE PARTITION DROP TABLE PARTITION . ALTER INDEX REB-
 UILD PARTITION

가

가 . 가
 가
 가
 ALTER TABLE...ADD PARTITION " " (
) 가 가 .
 가 MAXVALUE ALTER TABLE...ADD PARTITION
 SPLIT PARTITION .
 ...ADD PARTITION 가 MAXVALUE가 ALTER TABLE
 가 , DBA가 12 가
 가 . 1999 1 1 DBA 1 SALES
 가 .
 ALTER TABLE sales
 ADD PARTITION jan96 VALUES LESS THAN ('01-FEB-1999')
 TABLESPACE tsx;

가 ALTER TABLE...ADD PARTITION
 가 . Oracle
 ADD

```
ALTER TABLE sales DROP PARTITION dec94;
ALTER INDEX sales_area_ix REBUILD sal1;
```

가

2. DELETE ALTER TABLE...DROP PARTITION
. DELETE

```
: ALTER TABLE...
MODIFY PARTITION...NOLOGGING NOLOGG-
ING
```

, DBA가 가 10000
. DBA

```
DELETE FROM sales WHERE TRANSID < 10000;
ALTER TABLE sales DROP PARTITION dec94;
```

가

1. ALTER TABLE...DROP PARTITION

```
ALTER TABLE sales
  DISABLE CONSTRAINT dname_sales1;
ALTER TABLE sales DROP PARTITION dec94;
ALTER TABLE sales
  ENABLE CONSTRAINT dname_sales1;
```

가

2. DELETE ALTER TABLE...DROP PARTITION
. DELETE

```
DELETE FROM sales WHERE TRANSID < 10000;
ALTER TABLE sales DROP PARTITION dec94;
```

```
ALTER INDEX...DROP PARTITION
```

가

, DBA가 P1

P1 P2가

DBA

```
ALTER INDEX npr DROP PARTITION P1;
ALTER INDEX npr REBUILD PARTITION P2;
```

⋮

RDBMS가

가

```
ALTER TABLE ouul
COALESCE PARTITION;
```

PCTFREE

```
ALTER INDEX scuba_1
  MODIFY DEFAULT ATTRIBUTES FOR PARTITION bcd_1998
  PCTFREE 25;
```

ALTER TABLE...TRUNCATE
PARTITION
ALTER TABLE TRUNCATE PARTITION

ALTER TABLE...TRUNCATE PARTITION

가 ALTER TABLE...TRUNCATE PARTITION

가

1. ALTER TABLE TRUNCATE PARTITION

: ALTER TABLE...TRUNCATE PARTITION

REBUILD

sales

```
ALTER TABLE sales TRUNCATE PARTITION dec94;
ALTER INDEX sales_area_ix REBUILD sales;
```

가

ALTER TABLE/INDEX

SPLIT PARTITION

SPLIT PARTITION

ALTER TABLE...SPLIT PARTITION

가

. Oracle

가

ALTER TABLE...SPLIT PARTITION

(2 가)

IT PARTITION

. ALTER TABLE...SPL-

가 " VET_cats "

. VET VET_parta VET_partb 2

" fee_katy "

" fee_katy "

JAF1
VET

DBA

```
ALTER TABLE vet_cats SPLIT PARTITION
  fee_katy at (100) INTO ( PARTITION
  fee_katy1 ..., PARTITION fee_katy2 ...);
ALTER INDEX JAF1 REBUILD PARTITION SYS_P00067;
ALTER INDEX JAF1 REBUILD PARTITION SYS_P00068;
ALTER INDEX VET REBUILD PARTITION VET_parta;
ALTER INDEX VET REBUILD PARTITION VET_partb;
```

:

SYS_P00067

SYS_P00068

JAF1

fee_katy1 fee_katy2가

QUON1

```
ALTER INDEX quon1 SPLIT
    PARTITION canada AT VALUES LESS THAN ( 100 ) INTO
    PARTITION canada1 ..., PARTITION canada2 ...);
ALTER INDEX quon1 REBUILD PARTITION canada1;
ALTER INDEX quon1 REBUILD PARTITION canada2;
```

```
ALTER TABLE diving
    MERGE PARTITIONS bcd1, bcd2 INTO PARTITION bcd1bcd2;
```

가 가 , ,
가 :
 (")

```
CREATE VIEW accounts
    SELECT * FROM accounts_jan98
    UNION ALL
    SELECT * FROM accounts_feb98
    UNION ALL
    ...
    SELECT * FROM accounts_dec98;
```

1. NOV98 ACCOUNTS_DEC98 2 가 ACCOUNTS_

```
CREATE TABLE accounts_new (...)  
TABLESPACE ts_temp STORAGE (INITIAL 2)  
PARTITION BY RANGE (opening_date)  
(PARTITION jan98 VALUES LESS THAN ('01-FEB-1998'),  
...  
PARTITION dec98 VALUES LESS THAN ('01-FEB-1998'));
```

2. EXCHANGE

```
ALTER TABLE accounts_new  
EXCHANGE PARTITION nov98 WITH TABLE  
accounts_nov98 WITH VALIDATION;  
  
ALTER TABLE accounts_new  
EXCHANGE PARTITION dec98 WITH TABLE  
accounts_dec98 WITH VALIDATION;
```

NOV98 DEC98
ACCOUNTS_NOV98 ACCOUNTS_DEC98

3. ACCOUNTS

```
CREATE OR REPLACE VIEW accounts  
SELECT * FROM accounts_jan98  
UNION ALL  
SELECT * FROM accounts_feb_98  
UNION ALL  
...  
UNION ALL  
SELECT * FROM accounts_new PARTITION (nov98)  
UNION ALL  
SELECT * FROM accounts_new PARTITION (dec98);
```

4. NOV98 DEC98
ACCOUNTS_NOV98 ACCOUNTS_DEC98

5. UNIONALL

```
DROP VIEW accounts;
RENAME accounts_new TO accounts;
```

:
SQL

Oracle8i

ALTER TABLE...DROP PARTITION

2가

1. ALTER INDEX...REBUILD PARTITION

2.

```
=====
:
=====
```

```

, , 가
GROUP BY, AVERAGE COUNT
. DBA 가
, 가
, 1995 4 30 DBA
1994 4 ( )
1995 4
가 13 ORDER
ORDER_yymm
ORDER 가
ORDER_IX_ONUM , 가
ORDER_IX_SUPP, 가

```

12 “

”

UNRECOVERABLE

가 가

SQL

가

PCTFREE PCTUSED

: PCTFREE PCTUSED 12-2 “
”

INITRANS MAXTRANS

: INITRANS MAXTRANS 12-7 “
”

CREATE TABLE TABLESPACE

CREATE TABLE

가

SYSTEM

Oracle

가

가

: " 9-3 "

CREATE TABLE

:
and Administration

Oracle8i Parallel Server Concepts
Oracle8i SQL

UNRECOVERABLE

CREATE TABLE...AS SELECT
COVERABLE

UNRE-

' . ' 가

.) . (

UNLIMITED

. MAXEXTENTS

Oracle

가

:

MAXEXTENTS

, 가

STORAGE . (.)

Oracle8

가

가

Oracle

가

Oracle8i SQL

가

Oracle

”

DESCRIBE

, REF 가
Oracle

SELECT*

, 가

“

Oracle

가

가

```
num_columns(object_table) =  
    num_columns(object_identifier)  
  + num_columns(row_type)  
  + number of top-level object columns in the object type of table  
  + num_columns(object_type)
```

```

num_columns(relational_table) =
    number of scalar columns in the table
  + number of object columns in the table
  + SUM [num_columns(object_type(i))]   i= 1 -> n
  + SUM [num_columns(nested_table(j))]  j= 1 -> m
  + SUM [num_columns(varray(k))]       k= 1 -> p
  + SUM [num_columns(REF(l))]          l= 1 -> q

```

where in the given relational table
 object_type(i) is the ith object type column and
 n is the total number of such object type columns
 nested_table(j) is the jth nested_table column and
 m is the total number of such nested table columns
 varray(k) is the kth varray column and
 p is the total number of such varray columns,
 REF(l) is the lth REF column and
 q is the total number of such REF columns.

```

num_columns(object identifier) = 1
num_columns(row type)           = 1
num_columns(REF)                = 1, if REF is unscoped
                                = 1, if the REF is scoped          and the object
                                identifier is system generated       and the REF
                                has no referential constraint
                                = 2, if the REF is scoped          and the object
                                identifier is system generated       and the REF
                                has a referential constraint
                                = 1 + number of columns in the primary key,
                                if the object identifier is primary key
                                based
num_columns(nested table)       = 2
num_columns(varray)             = 1
num_columns(object type)        = number of scalar attributes in the object
                                type
                                + SUM[num_columns(object_type(i))] i= 1 -> n
                                + SUM[num_columns(nested_table(j))] j= 1 -> m
                                + SUM[num_columns(varray(k))]       k= 1 -> p
                                + SUM[num_columns(REF(l))]          l= 1 -> q

```

object_type(i) is an embedded object type attribute and
 n is the total number of such object type attributes,
 nested_table(j) is an embedded nested_table attribute and
 m is the total number of such nested table attributes,
 varray(k) is an embedded varray attribute and
 p is the total number of such varray attributes,
 REF(l) is an embedded REF attribute and

q is the total number of such REF attributes.

1

```
CREATE TYPE physical_address_type AS OBJECT
    (no CHAR(4), street CHAR(31), city CHAR(5), state CHAR(3));
CREATE TYPE phone_type AS VARRAY(5) OF CHAR(15);
CREATE TYPE electronic_address_type AS OBJECT
    (phones phone_type, fax CHAR(12), email CHAR(31));
CREATE TYPE contact_info_type AS OBJECT
    (physical_address physical_address_type,
     electronic_address electronic_address_type);
CREATE TYPE employee_type AS OBJECT
    (eno NUMBER, ename CHAR(60),
     contact_info contact_info_type);

CREATE TABLE employee_object_table OF employee_type;
```

employee_type

```
num_columns(physical_address_type) =
    number of scalar attributes = 4
num_columns(phone_type) =
    num_columns(varray) = 1
num_columns(electronic_address_type) =
    number of scalar attributes
    + num_columns(phone_type)
    = 2 + 1 = 3
num_columns(contact_info_type) =
    num_columns(physical_address_type)
    + num_columns(electronic_address_type)
    = 3 + 4 = 7
num_columns(employee_type) =
    number of scalar attributes
    + num_columns(contact_info_type)
    = 2 + 7 = 9

num_columns (employee_object_table) =
    num_columns(object_identifier)
    + num_columns(row_type)
    + number of top level object columns in employee_type
    + num_columns(employee_type)
    = 1 + 1 + 1 + 9 = 12
```

2

```
CREATE TABLE employee_relational_table (einfo employee_type);

num_columns (employee_relational_table) =
```

```

    number of object columns in table
+ num_columns(employee_type)
= 1 + 9 = 10

```

3

```

CREATE TYPE project_type AS OBJECT (pno NUMBER, pname CHAR(30),
budget NUMBER);

CREATE TYPE project_set_type AS TABLE OF project_type;

CREATE TABLE department
    (dno NUMBER, dname CHAR(30),
    mgr REF employee_type REFERENCES employee_object_table,
    project_set project_set_type)
NESTED TABLE project_set STORE AS project_set_nt;

num_columns(department) =
    number of scalar columns
+ num_columns(mgr)
+ num_columns(project_set)
= 2 + 2 + 2 = 6

```

CREATE TABLE
CREATE ANY TABLE

UNLIMITED TABLESPACE

SQL CREATE TABLE SCOTT
가 EMP
USERS

```

CREATE TABLE emp (
    empno NUMBER(5) PRIMARY KEY,
    ename VARCHAR2(15) NOT NULL,
    job VARCHAR2(10),
    mgr NUMBER(5),
    hiredate DATE DEFAULT (sysdate),
    sal NUMBER(7,2),
    comm NUMBER(7,2),
    deptno NUMBER(3) NOT NULL
    CONSTRAINT dept_fkey REFERENCES dept)
PCTFREE 10
PCTUSED 40
TABLESPACE users

```



```

STORAGE ( INITIAL 50K
          NEXT 50K
          MAXEXTENTS 10
          PCTINCREASE 25 );

```

가

```

:
23 " " ,
24 " "

```

```

ALTER ANY TABLE ALTER

```

가

가

```

( , , NOT NULL )

```

(PCTFREE, PCTUSED)

(INITRANS, MAXTRANS)

(NEXT, PCTINCREASE)

CHAR

가

CHAR

PCTFREE PCTUSED

: ALLOCATE EXTENT
Concepts and Administration

Oracle8i Parallel Server

DROP ANY TABLE

SQL DROP TABLE

. EMP

DROP TABLE emp;

TABLE FOREIGN KEY DROP
CASCADE CONSTRAINTS;

DROP TABLE emp CASCADE CONSTRAINTS;

:

가

PL/SQL

20-23

“

”

가

가

t1

```
ALTER TABLE t1 DROP UNUSED COLUMNS;
```

SYS

:
SQL

Oracle8i

ORDER BY

가 B* B B*

가,

가

가

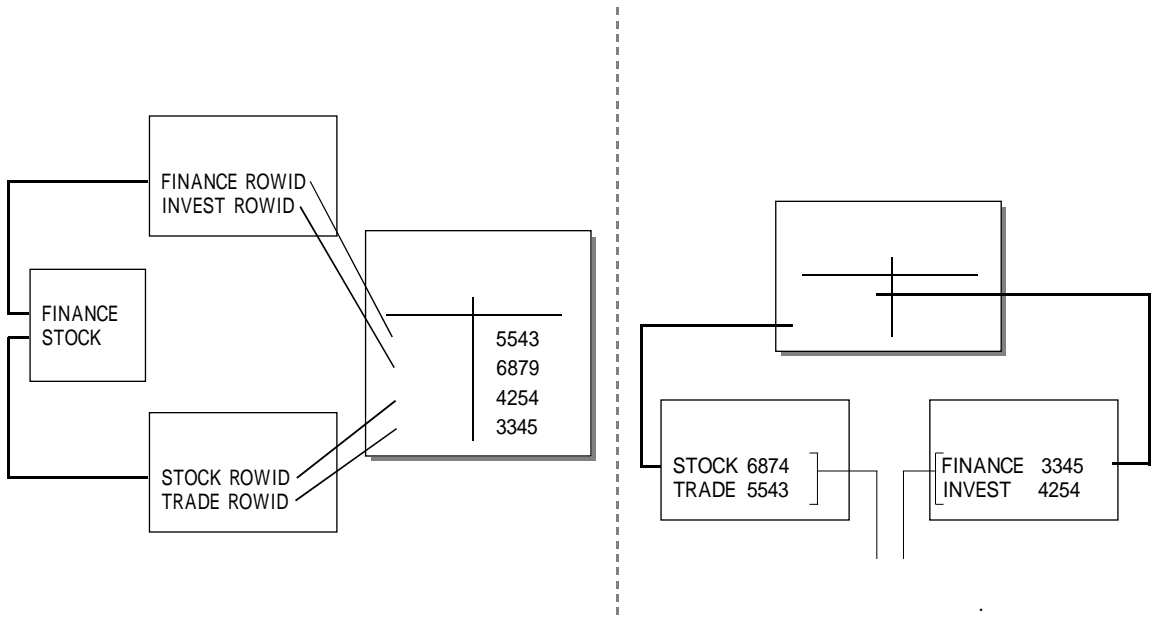
Oracle8i

가

B*

B*

14-1



가

가
ROWID

14-1

14-1

| | |
|-------|-------|
| | |
| ROWID | 가 |
| ROWID | ROWID |
| | ROWID |
| | |

CREATE TABLE

가

ORGANIZATION INDEX

B*

(PCTTHRESHOLD)

가

가

가

가

```
CREATE TABLE docindex(  
  token char(20),  
  doc_id NUMBER,  
  token_frequency NUMBER,  
  token_offsets VARCHAR2(512),  
  CONSTRAINT pk_docindex PRIMARY KEY (token, doc_id))  
ORGANIZATION INDEX TABLESPACE ind_tbs  
PCTTHRESHOLD 20  
OVERFLOW TABLESPACE ovf_tbs;
```

ORGANIZATION INDEX

가

doc_id)

가

(token,

mytype ()

```
CREATE TABLE iot (c1 NUMBER primary key, c2 mytype)  
ORGANIZATION INDEX;
```

```
CREATE TABLE iot of mytype ORGANIZATION INDEX;
```

```
: CREATE INDEX Oracle8i SQL
```

```
AS
```

```
AS
```

```
PARALLEL
```

```
rt
```

```
CREATE TABLE iot(i primary key, j) ORGANIZATION INDEX PARALLEL (DEGREE 2)  
AS SELECT * FROM rt;
```

```
: Oracle8i SQL
```

```
TEXT_COLLECTION_OVERFLOW 20% 가
```

```
가 ) 가 Oracle (
```

```
가 ) 가 가 Oracle (
```

```
가
```

```
ROWID 가 가
```



```

)
. ANALYZE TABLE...LIST CHAINED ROWS
  ID
: ANALYZE Oracle8i SQL
INCLUDING PCTTHRESHOLD INCLUDING
<column_name> 가
. Oracle 가
INCLUDING INCLU-
DING 가
, token_offsets

CREATE TABLE docindex(
  token CHAR(20),
  doc_id NUMBER,
  token_frequency NUMBER,
  token_offsets VARCHAR2(512),
  CONSTRAINT pk_docindex PRIMARY KEY (token, doc_id))
ORGANIZATION INDEX TABLESPACE ind_tbs
  PCTTHRESHOLD 20
  INCLUDING token_frequency
OVERFLOW TABLESPACE ovf_tbs;

token_frequency 가 ( )

```

COMPRESS

()

```
CREATE TABLE iot(i INT, j INT, k INT, l INT, PRIMARY KEY (i, j, k))
ORGANIZATION INDEX COMPRESS;
```

```
CREATE TABLE iot(i INT, j INT, k INT, l INT, PRIMARY KEY(i, j, k))
ORGANIZATION INDEX COMPRESS 2;
```

(1,2,3), (1,2,4), (1,2,7), (1,3,5) (1,3,4), (1,4,4)
(1,2), (1,3)

```
CREATE TABLE iot(i INT, j INT, k INT, l INT, PRIMARY KEY (i, j, k))
ORGANIZATION INDEX COMPRESS 1;
```

(1,2,3), (1,2,4), (1,2,7), (1,3,5), (1,3,4), (1,4,4)
1

```
ALTER TABLE A MOVE NOCOMPRESS;
```

:

Oracle8i

Oracle8i SQL

. INSERT, SELECT, DELETE UPDATE

ALTER TABLE

OVERFLOW

FLOW

OVER-

```

INITTRANS 6
INITTRANS 4
ALTER TABLE docindex INITTRANS 4 OVERFLOW INITTRANS 6;

PCTTHRESHOLD INCLUDING
, PCTTHRESHOLD INCLUDING
docindex
ALTER TABLE docindex PCTTHRESHOLD 15 INCLUDING doc_id;

INCLUDING doc_id doc_id , token_
frequency token_offsets

ADD OVERFLOW 가
, docindex 가
가

ALTER TABLE docindex ADD OVERFLOW TABLESPACE ovf_tbs;

: ALTER TABLE Oracle8i SQL

( )
B*
가 ALTER TABLE...MOVE

INITTRANS 10 docindex

ALTER TABLE docindex MOVE INITTRANS10;

ONLINE
, docindex
가

ALTER TABLE docindex MOVE ONLINE INITTRANS 10;

docindex

```

```
ALTER TABLE docindex MOVE TABLESPACE ix_tbs OVERFLOW TABLESPACE
ov_tbs;
```

```
가 . iot C2 LOB
```

```
ALTER TABLE iot MOVE LOB (C2) STORE AS (TABLESPACE lob_ts);
```

```
: MOVE Oracle8i SQL .
```

```
:
```

```
가 가 .
```

```
dept_id=20, e_id=10 dept_id=
23, e_id=10 .
```

```
UPDATE employees
SET dept_id=23
WHERE dept_id=20 and e_id=10;
```

```
ANALYZE .
```

```
ANALYZE TABLE docindex COMPUTE STATISTICS;
```

```
ANALYZE .
```

```
USER_TABLES, ALL_TABLES DBA_TABLES .
```

```
USER_INDEXES, ALL_INDEXES DBA_INDEXES (
```

```
docindex .
```

```
SELECT * FROM DBA_INDEXES WHERE INDEX_NAME= 'PK_DOCINDEX';
```

```
USER_TABLES, ALL_TABLES    DBA_TABLES
                             . IOT_TYPE =
' IOT_OVERFLOW '
                             ,          docindex
```

```
SELECT * FROM DBA_TABLES WHERE IOT_TYPE='IOT_OVERFLOW' and
IOT_NAME= 'DOCINDEX'
```

ORDER BY

ORDER BY

```
CREATE TABLE employees (dept_id INTEGER, e_id INTEGER, e_name
    VARCHAR2, PRIMARY KEY (dept_id, e_id)) ORGANIZATION INDEX;
```

가

```
SELECT * FROM employees ORDER BY (dept_id, e_id);
SELECT * FROM employees ORDER BY (dept_id);
```

가 가 ORDER BY

```
SELECT * FROM employees ORDER BY (e_id);
SELECT * FROM employees ORDER BY (e_name);
```

Oracle IMPORT/EXPORT

CREATE TABLE...AS SELECT

가 IGNORE=y

: Export Oracle8

: IMPORT/EXPORT Oracle8i Utilities



,

12 “ ”

```

SALES_STAFF          10
CHECK OPTION      가          INSERT  UPDATE
                                '      INSERT
EMP          10  가          SALES_STAFF

```

```

INSERT INTO sales_staff VALUES (7584, 'OSTER', 10);

```

```

INSERT      SALES_STAFF          30
                                가

```

```

INSERT INTO sales_staff VALUES (7591, 'WILLIAMS', 30);

```

```

EMP      DEPT

```

```

CREATE VIEW division1_staff AS
  SELECT ename, empno, job, dname
     FROM emp, dept
     WHERE emp.deptno IN (10, 30)
     AND emp.deptno = dept.deptno;

```

```

DIVISION1_STAFF  EMP  DEPT      . CHECK
OPTION          CREATE VIEW

```

```

ANSI/ISO

```

```

                                가
                                가
                                ,
                                DEPT

```

```

CREATE VIEW dept AS SELECT * FROM scott.dept;

```

```

Oracle  DEPT

```

```

SELECT "DEPTNO", "DNAME", "LOC" FROM scott.dept

```

가 . 가

가

CREATE VIEW 가 , “ 가 ” ,

가 가

가 CREATE VIEW FORCE

CREATE FORCE VIEW AS ;

Oracle 가 가 가 가

INVALID 가 가

: 20-23 “

가 SELECT FROM

DISTINCT

: AVG, COUNT, GLB, MAX, MIN, STDDEV, SUM, VARIANCE

: UNION, UNION ALL, INTERSECT, MINUS

GROUP BY HAVING

START WITH CONNECT BY

ROWNUM

. 가

EMP DEPT

EMP DEPT

가

```

CREATE TABLE dept (
  deptno      NUMBER(4) PRIMARY KEY,
  dname       VARCHAR2(14),
  loc         VARCHAR2(13));

CREATE TABLE emp (
  empno       NUMBER(4) PRIMARY KEY,
  ename       VARCHAR2(10),
  job         varchar2(9),
  mgr         NUMBER(4),
  sal         NUMBER(7,2),
  comm        NUMBER(7,2),
  deptno      NUMBER(2),
  FOREIGN KEY(DEPTNO) REFERENCES DEPT(DEPTNO));

```

DEPT(DEPTNO) UNIQUE INDEX

: 가

Oracle8i Tuning

가

가

가

:

가

가

가

가

DEPT

, EMP
DEPT.DEPTNO EMP DEPT

EMP_DEPT_VIEW

SELECT

| EMPNO | ENAME | DEPTNO | DNAME | LOC |
|-------|--------|--------|------------|----------|
| 7782 | CLARK | 10 | ACCOUNTING | NEW YORK |
| 7839 | KING | 10 | ACCOUNTING | NEW YORK |
| 7934 | MILLER | 10 | ACCOUNTING | NEW YORK |
| 7369 | SMITH | 20 | RESEARCH | DALLAS |
| 7876 | ADAMS | 20 | RESEARCH | DALLAS |
| 7902 | FORD | 20 | RESEARCH | DALLAS |
| 7788 | SCOTT | 20 | RESEARCH | DALLAS |
| 7566 | JONES | 20 | RESEARCH | DALLAS |

8 rows selected.

EMPNO가 EMP
DEPT

EMP
DEPTNO가 DEPT

DML

UPDATE, INSERT, DELETE

UPDATE

EMP_DEPT

UPDATE

```
UPDATE emp_dept  
SET sal = sal * 1.10  
WHERE deptno = 10;
```

UPDATE EMP_DEPT

```
UPDATE emp_dept  
SET loc = 'BOSTON'  
WHERE ename = 'SMITH';
```

UPDATE ORA-01779 (cannot modify a column which maps to a
non key-preserved table)

DEPT EMP_DEPT

가

가 WITH CHECK OPTION

, EMP_DEPT 가 WITH CHECK OPTION

UPDATE

```
UPDATE emp_dept
```

```
SET deptno = 10
WHERE ename = 'SMITH';
```

DELETE

DELETE EMP_DEPT

```
DELETE FROM emp_dept
WHERE ename = 'SMITH';
```

```
EMP_DEPT DELETE EMP DELETE
EMP
E1 E2가 DELETE
```

```
CREATE VIEW emp_emp AS
SELECT e1.ename, e2.empno, deptno
FROM emp e1, emp e2
WHERE e1.empno = e2.empno;
```

가 WITH CHECK OPTION

```
CREATE VIEW emp_mgr AS
SELECT e1.ename, e2.ename mname
FROM emp e1, emp e2
WHERE e1.mgr = e2.empno
WITH CHECK OPTION;
```

가

INSERT EMP_DEPT INSERT

```
INSERT INTO emp_dept (ename, empno, deptno)
VALUES ('KURODA', 9010, 40);
```

```
DEPTNO (EMP FOREIGN KEY DEPT
)
```

INSERT EMP UPDATE가
. EMP FOREIGN KEY

```
INSERT INTO emp_dept (ename, empno, deptno)
VALUES ('KURODA', 9010, 77);
```

INSERT ORA-01776 (cannot modify more than one base
table through a view)

```
INSERT INTO emp_dept (empno, ename, loc)
VALUES (9010, 'KURODA', 'BOSTON');
```

INSERT
가 WITH CHECK OPTION
INSERT

UPDATABLE_COLUMNS

15-1

15-1 UPDATABLE_COLUMNS

USER_UPDATABLE_COLUMNS 가

DBA_UPDATABLE_COLUMNS DBA 가

ALL_UPDATABLE_VIEWS 가

가

:
가

```

OR REPLACE          CREATE VIEW
. OR REPLACE
.                   SALES_STAFF      가
.                   SALES_STAFF     WHERE
SALES_STAFF

```

```

CREATE OR REPLACE VIEW sales_staff AS
SELECT empno, ename, deptno
FROM emp
WHERE deptno = 30
WITH CHECK OPTION CONSTRAINT sales_staff_cnst;

```

CHECK OPTION

```

PL/SQL
20-23 " "

```

```

DROP ANY VIEW      . SQL      DROP VIEW
                   ,         SALES_STAFF

```

```

DROP VIEW sales_staff;

```

CREATE SEQUENCE
CREATE ANY SEQUENCE
SQL
CREATE SEQUENCE
EMP EMPNO

```
CREATE SEQUENCE emp_sequence  
  INCREMENT BY 1  
  START WITH 1  
  NOMAXVALUE  
  NOCYCLE  
  CACHE 10;
```

CACHE

가 Oracle

가

(가 SHUTDOWN ABORT)

Oracle8i Utilities

: Oracle Parallel Server가 Oracle8i
Parallel Server Concepts and Administration

Oracle8i Tuning

ALTER ANY SEQUENCE

가

DDL

SQL ALTER SEQUENCE
EMP_SEQUENCE

```
ALTER SEQUENCE emp_sequence  
INCREMENT BY 10  
MAXVALUE 10000  
CYCLE  
CACHE 20;
```

SEQUENCE_CACHE_ENTRIES

가

SEQUENCE_CACHE_ENTRIES

SEQUENCE_CACHE_ENTRIES = 4
가
()

가

가

DROP

ANY SEQUENCE

SQL DROP SEQUENCE
ORDER_SEQ

가

```
DROP SEQUENCE order_seq;
```

가

가

PUBLIC

가

가

CREATE SYNONYM
CREATE ANY SYNONYM
CREATE PUBLIC SYNONYM

SQL CREATE SYNONYM
JWARD EMP PUBLIC_EMP

CREATE PUBLIC SYNONYM public_emp FOR jward.emp;

DROP ANY SYNONYM
DROP PUBLIC SYNONYM

SQL DROP SYNONYM
PUBLIC PUBLIC
EMP

DROP SYNONYM emp;

PUBLIC_EMP

DROP PUBLIC SYNONYM public_emp;

가

: 가
“ ”

20-23

12 “ ”

NOLOGGING

SQL

가
Oracle

SQL

가

Oracle
가

가

가, ,

가

:

Oracle8i Tuning

Oracle8i

Oracle Objects

Guide

Oracle8i Data Cartridge Developer's

SQL*Loader Import

가

가

가
. Oracle

Oracle

SORT_AREA_SIZE) (

가

1.

2.

3.

4.

:

SQL*Loader “ ”
가

Oracle8i Utilities

가

가

, 가 가

INITRANS MAXTRANS

(,)
: " 12-7 "

가 PCTFREE
PCTFREE
(,)

PCTFREE
PCTFREE
: 12-2 PCTUSED " " PCTFREE

가) (가 가
) 가 (

가 Oracle 가
INITIAL 5M 12 가
60M
: Oracle8i Tuning

NOLOGGING

CREATE INDEX NOLOGGING

LOGGING

NOLOGGING

LOGGING
LOGGING

가

가

가

2 1

12-7

“

:
”

가

가

가

16-1

16-1

| | |
|-----|--|
| | |
| | |
| | |
| , 가 | |
| | |

B

가

```
ALTER INDEX vmoore COALESCE;
```

16-1

VMOORE

ALTER INDEX COALESCE
50%

가

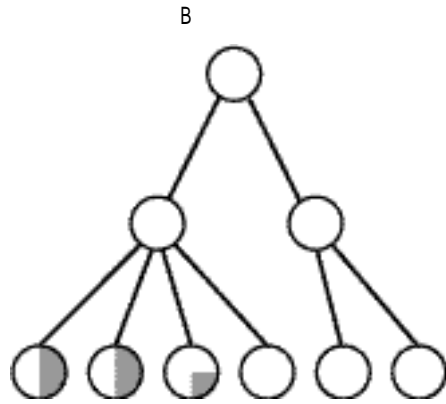
.

PCTFREE =0

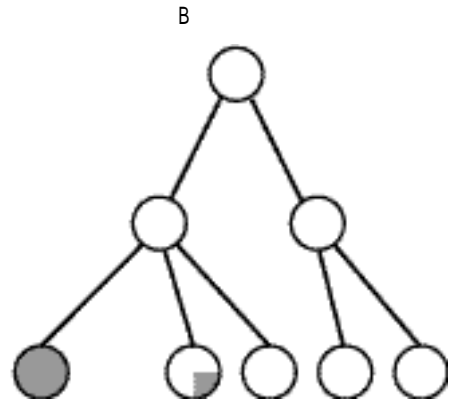
가

.

1-1



ALTER INDEX vmoore COALESCE;



ALTER INDEX vmoore COALESCE;

UNIQUE

PRIMARY KEY

. UNIQUE

PRIMARY KEY

가

UNIQUE PRIMARY KEY
 가 UNLIMITED
 TABLESPACE .
 LOBS, LONG LONG RAW .
 Oracle UNIQUE PRIMARY
 KEY Oracle
 CREATE TABLE ALTER
 TABLE 가 가 .
 ,
 .
 CREATE UNIQUE INDEX

가

INITIAL NEXT

USING INDEX 가 ENABLE UNIQUE PRIMARY
 KEY
 PRIMARY KEY

```

CREATE TABLE emp (
  empno NUMBER(5) PRIMARY KEY, . . . )
ENABLE PRIMARY KEY USING INDEX
TABLESPACE users
PCTFREE 0;
  
```

SQL CREATE INDEX EMP ENAME
 EMP_ENAME .

```

CREATE INDEX emp_ename ON emp(ename)
TABLESPACE users
STORAGE (INITIAL 20K
NEXT 20k
PCTINCREASE 75)
  
```

PCTFREE 0;

DML S

DML

가 가

DML SS

DDL

ALTER INDEX emp_name REBUILD ONLINE;

CREATE INDEX emp_name ON emp (mgr, emp1, emp2, emp3) ONLINE;

| | | |
|--------|-----|---------|
| : | DML | |
| Oracle | , | DML 30% |

: Oracle8i SQL

() , SQL
가

Area(geo)

CREATE INDEX area_index ON rivers (Area(geo)) DESC;

```

area_index      area(geo)
SELECT id, geo Area(geo), desc
FROM rivers r
WHERE Area(geo) >5000;

```

SQL Area(geo)가 WHERE area_index

```

:
EXECUTE 가
가 가

```

: Oracle8i
Oracle8i Application Developer's Guide - Fundamentals

1

```

emp idx
CREATE INDEX idx ON emp (UPPER(emp_name));
SELECT UPPER(emp_name) :KEYCOL:
가
SELECT * FROM emp WHERE UPPER(emp_name) like :KEYCOL;
SELECT ( )
( 가 )
CREATE INDEX idx ON t (a + b * (c - 1), a, b);
SELECT a FROM t WHERE a + b * (c - 1) < 100;

```

2

NLS . NLSSORT
name NLSSORT

```
CREATE INDEX nls_index ON t_table (NLSSORT(name, 'NLS_SORT = German'));
```

```
t_table nls_index
```

```
NLS_SORT
```

```
SELECT * FROM t_table ORDER BY name;
```

3

```
CREATE INDEX case_insensitive_idx ON emp_table (UPPER(empname));
```

```
SELECT * FROM emp_table WHERE UPPER(empname) = 'JOE';
```

4

가

```
CREATE INDEX emp_i ON emp  
UPPER ((ename), NLSSORT(ename));
```

```
NLSSORT가  
SORT NLSSORT  
가
```

```
NLS_  
NLSSORT(ename)
```

```
NLSSORT(ename, NLS_SORT='German')
```

: CREATE INDEX

INDEX

. ANALYZE VALIDATE

:
SQL

Oracle8i

Oracle8i

6

16-1

16-

CREATE INDEX

ALTER INDEX index_name REBUILD;

REBUILD DEALLOCATE UNUSED

REBUILD

: ALTER INDEX

Oracle8i SQL

ROWID가 가 ROWID
ROWID 가

가

COMPRESS

```
CREATE INDEX emp_ename (ename)
  TABLESPACE users
  COMPRESS 1
```

COMPRESS

```
ALTER INDEX emp_ename REBUILD NOCOMPRESS;
```

: CREATE INDEX

Oracle8i SQL

가

ALTER ANY INDEX

SQL ALTER INDEX

, EMP_ENAME

```
ALTER INDEX emp_ename
  INITRANS 5
  MAXTRANS 10
```

```

        STORAGE (PCTINCREASE 50);

        (INITRANS, MAXTRANS)          INI-
TRANS                                MAXTR-
ANS                                  ANS
        (                               )

        INITIAL MAXEXTENTS

        USING INDEX 가 ENABLE

        ALTER TABLE

ALTER TABLE emp
    ENABLE PRIMARY KEY USING INDEX
    PCTFREE 5;

```

INDEX_STATS

```

SELECT pct_used FROM sys.index_stats WHERE name = 'indexname';

```

PCT_USED

()

: 20-3 “ ,
” .

가 DROP ANY INDEX
.

가

(,)

가

CREATE INDEX

:

UNIQUE PRIMARY KEY

DROP INDEX emp_ename;

: 20-3 “ , ”

20-13 “

”



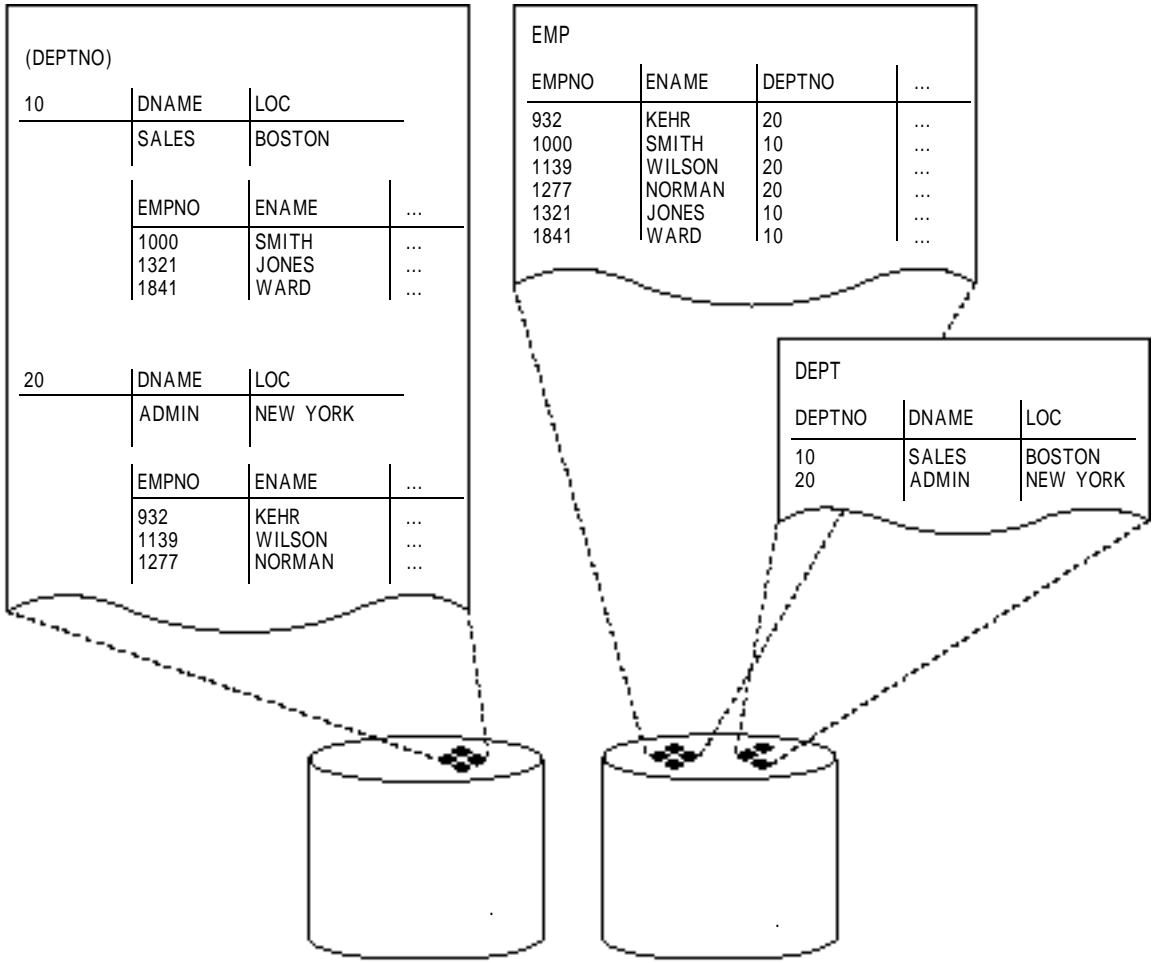
12 “ ”

DEPT DEPTNO EMP DEPT , EMP
(17-1) Oracle EMP DEPT

가

가

, (DEPTNO)가 EMP DEPT
가
가 가
가



PCTFREE PCTUSED

PCTUSED

PCTFREE

: PCTFREE PCTUSED
”

12-2

“

CREATE CLUSTER

SIZE 가 가 . Oracle

SIZE

()

SIZE

가 가
가

SIZE가

가

Oracle

가

가

SIZE가

가

CLUSTER/INDEX

TABLESPACE

. CREATE
가

가

가

가

CREATE CLUSTER
UNLIMITED TABLESPACE

CREATE ANY CLUSTER

UNLIMITED TABLESPACE

SQL CREATE CLUSTER
DEPTNO
EMP_DEPT

EMP DEPT

```

CREATE CLUSTER emp_dept (deptno NUMBER(3))
  PCTUSED 80
  PCTFREE 5
  SIZE 600
  TABLESPACE users
  STORAGE (INITIAL 200k
    NEXT 300K
    MINEXTENTS 2
    MAXEXTENTS 20
    PCTINCREASE 33);

```

```

                                CREATE TABLE    CREATE ANY TABLE
                                .
UNLIMITED TABLESPACE          .
SQL CREATE TABLE    CLUSTER
    . EMP    DEPT                                EMP_DEPT
    .

```

```

CREATE TABLE dept (
  deptno NUMBER(3) PRIMARY KEY, . . . )
  CLUSTER emp_dept (deptno);

```

```

CREATE TABLE emp (
  empno NUMBER(5) PRIMARY KEY,
  ename VARCHAR2(15) NOT NULL,
  . . .
  deptno NUMBER(3) REFERENCES dept)
  CLUSTER emp_dept (deptno);

```

: CREATE TABLE

가

```

가                                CREATE INDEX
CREATE ANY INDEX

```

MITED TABLESPACE

. EMP_DEPT

```

CREATE INDEX emp_dept_index
ON CLUSTER emp_dept
INITRANS 2
MAXTRANS 5
TABLESPACE users
STORAGE (INITIAL 50K
NEXT 50K
MINEXTENTS 2
MAXEXTENTS 10
PCTINCREASE 33)
PCTFREE 5;

```

```

:
23 " 24 " " " ,

```

```

(PCTFREE, PCTUSED)

```

```

(SIZE)

```

```

(INITRANS, MAXTRANS)

```

```

(NEXT, PCTINCREASE)

```

```

ALTER ANY CLUSTER

```

```

(PCTFREE, PCTUSED)

```

```

(SIZE)

```

```

가

```

```

(INITRANS, MAXTRANS)

```

```

INITRANS

```

MAXTRANS ()

INITIAL MINEXTENTS

ALTER CLUSTER EMP_DEPT

```
ALTER CLUSTER emp_dept
PCTFREE 30
PCTUSED 60;
```

SQL ALTER TABLE

ALTER TABLE

(ORA-01771, "illegal option for a clustered table")

Oracle

가 , 가
가, ,

ALTER

TABLE

;

가
가

, Oracle Parallel Server

ALTER CLUSTER ALLOCATE EXTENT

: 14-10 " "

16-13

" "

ALTER CLUSTER CLUSTER
Parallel Server Concepts and Administration

Oracle8i

가

가

DROP ANY CLUSTER
가

DROP TABLE

DROP CLUSTER INCLUDING TABLES

DROP TABLE

14-12

“ ”

가

가

SQL

DROP CLUSTER , EMP_DEPT

```
DROP CLUSTER emp_dept;
```

DROP CLUSTER INCLUDING TABLES 가

```
DROP CLUSTER emp_dept INCLUDING TABLES;
```

INCLUDING TABLES

가

KEY
KEY

FOREIGN
FOREIGN

DROP CLUSTER CASCADE CONSTRAINTS

```
DROP CLUSTER emp_dept INCLUDING TABLES CASCADE CONSTRAINTS;
```

CASCADE CONSTRAINTS

가

:

16-15

“ ”

.



” :

12 “

가
가
()
)
:
Oracle8i
,

가

SELECT . . . WHERE cluster_key = . . . ;

가

) .() (

가

SELECT . . . WHERE cluster_key < . . . ;

WHERE

가

가

()

가

:

Oracle8i SQL

Oracle8i

```
SIZE HASHKEYS  
      . INITIAL, NEXT, MINEXTENTS  
      SIZE*HASHKEYS  
      가  
      가 1900 ( 가 2K  
      ) STORAGE HASH CREATE CLUSTER
```

```
STORAGE (INITIAL 100K  
         NEXT 150K  
         MINEXTENTS 1  
         PCTINCREASE 0)  
SIZE 1500  
HASHKEYS 100
```

100*2K 200K

100K 150K가

HASH

```
SIZE 500 HASHKEYS 100
```

```
가  
34*2K 68K  
( 100K가  
)
```

```
가  
CREATE CLUSTER . SQL  
TRIALNO TRIAL TRIAL_CLUSTER  
ER
```

```

CREATE CLUSTER trial_cluster (trialno NUMBER(5,0))
  PCTUSED 80
  PCTFREE 5
  TABLESPACE users
  STORAGE (INITIAL 250K NEXT 50K
    MINEXTENTS 1 MAXEXTENTS 3
    PCTINCREASE 0)
  HASH IS trialno HASHKEYS 150;

CREATE TABLE trial (
  trialno      NUMBER(5,0) PRIMARY KEY,
  ...)
  CLUSTER trial_cluster (trialno);

```

CREATE CLUSTER

```

: , CREATE CLUSTER

```

17-6

PEANUT

```

CREATE CLUSTER peanut (variety NUMBER)
  SIZE 512 SINGLE TABLE HASHKEYS 500;

```

Oracle HASHKEYS 가
503 512

VARIETY

```

: HA-
SHKEYS

```

```

: CREATE CLUSTER

```

Oracle8i SQL

HASH IS, SIZE, HASHKEYS

가 , EMPNO , EMP 가
DEPTNO 가 , 가 가
) 가 Oracle (

HASH IS
가 NUMBER
HASH IS

SIZE
SIZE SIZE
가) SIZE ()
가 SIZE
가 (HASH IS)
가 SIZE

가
18-1 SIZE

18-1 SIZE 가

| 가 / SIZE | SIZE |
|-------------|------------|
| 1 | SIZE |
| 2 | SIZE + 15% |
| 3 | SIZE + 12% |
| 4 | SIZE + 8% |
| >4 | SIZE |

SIZE

SIZE

HASHKEYS

Oracle

HASHKEYS 가

KEYS
2K) 1950 가 가 (

1 EMP EMP 10000

55 EMPNO가 EMPNO

SIZE 55

34 가

HASHKEYS 10000 10007

```

CREATE CLUSTER emp_cluster (empno
NUMBER)
. . .
SIZE 55
HASH IS empno HASHKEYS 1007;

```

2

```

. . .
10 가 1000 가
10 가(0, 10, 20, 30,...)
DEPTNO가
. . .
) 550 , 55 *10
. SIZE
. . .
. SIZE 12% 620 (SIZE
)
. . .
HASHKEYS 1000 1009

```

```

CREATE CLUSTER emp_cluster (deptno NUMBER)
. . .
SIZE 620
HASH IS deptno HASHKEYS 1009;

```

SQL ALTER CLUSTER

```
ALTER CLUSTER emp_dept . . . ;
```

SIZE, HASHKEYS HASH IS ALTER CLUSTER

:

17-8

“ ”

SQL DROP CLUSTER .

DROP CLUSTER emp_dept ;

SQL DROP TABLE .

:

17-10

“

”



Oracle

가

DBMS_REPAIR

DBMS_REPAIR

가

DBMS_REPAIR

1 :

2 : DBMS_REPAIR

가

3 : 가

4 :

:

가

DBMS_REPAIR

가

가

가

DBMS_REPAIR

DBMS_REPAIR

19-1 DBMS_REPAIR

19-1 DBMS_REPAIR

check_object

fix_corrupt_blocks check_object 가

dump_orphan_keys 가

rebuild_freelists 가

skip_corrupt_blocks

ORA-1578

admin_tables DBMS_REPAIR (create, drop,
purge) : SYS

1 :

DBMS_REPAIR

DBMS_REPAIR

19-2

19-2

DBMS_REPAIR

DB_VERIFY

ANALYZE VALIDATE STRUCTURE

19-2 ()

DB_BLOCK_CHECKING

DBMS_REPAIR: check_object admin_tables

check_object

ANALYZE...VALIDATE STRUCTURE

check_object

fix_corrupt_blocks가

. admin_tables

가

가

check_object

DB_VERIFY:

가

DB_VERIFY

: DB_VERIFY

Oracle8i Utilities

ANALYZE:

ANALYZE TABLE...VALIDATE STRUCTURE

. Oracle

. 가

Oracle

: ANALYZE

Oracle8i SQL

DB_BLOCK_CHECKING ()

DB_BLOCK_CHECKING

(TRUE)

SET . DB_BLOCK_CHECKING ALTER SYSTEM

2 : DBMS_REPAIR 가

DBMS_REPAIR

가

1. ?

check_object

2. 가 ?

가

가

CREATE TABLE...AS SELECT

SELECT

3. DBMS_REPAIR

가?

가

가?

가?

가

?

가 가

가

. 가
. rebuild_freelists
.

. dump_orphan_keys
. (
. ALTER INDEX REBUILD ONLINE
.

4. 가?

. dump_orphan_keys
.

3 : 가

DBMS_REPAIR

: fix_corrupt_blocks skip_corrupt_blocks

DBMS_REPAIR
가

blocks fix_corrupt_
corrupt_blocks skip_
가

SET TRANSATION READ ONLY

SET TRANSATION READ ONLY

가 .

4 :

가 .

dump_orphan_keys

dump_orphan_keys

가

ROWID

ALTER INDEX REBUILD ONLINE

rebuild_freelists

가

“ ”

가

가

가

가

rebuild_freelists

가

가 . 가

가 (가)

가

“ ”

DBMS_REPAIR

LOBs 가 ,

VARRAYS

skip_corrupt_blocks rebuild_freelists
check_object

LOB

dump_orphan_keys

dump_orphan_keys 3,950

DBMS_REPAIR

DBMS_REPAIR

check_object

check_object

```
procedure check_object(schema_name IN varchar2,  
    object_name IN varchar2,  
    partition_name IN varchar2 DEFAULT NULL,  
    object_type IN binary_integer DEFAULT TABLE_OBJECT,  
    repair_table_name IN varchar2 DEFAULT 'REPAIR_TABLE',  
    flags IN binary_integer DEFAULT NULL,  
    relative_fno IN binary_integer DEFAULT NULL,  
    block_start IN binary_integer DEFAULT NULL,  
    block_end IN binary_integer DEFAULT NULL,  
    corrupt_count OUT binary_integer)
```


19-3 check_object

```

schema_name
object_name
partition_name . partition_
( ) name
.
.
object_type . TABLE_OBJECT INDEX_OBJECT .
( ) TABLE_OBJECT .
repair_table_name . SYS .
( ) admin_tables .
' REPAIR_TABLE ' .
flags ( ) .
relative_fno .
( ) .
block_start . 가 ,
( ) .
block_end ( ) . 가 ,
.
block_start block_end
.
corrupt_count

```

fix_corrupt_blocks

check_object 가

```

procedure fix_corrupt_blocks(
  schema_name IN varchar2,
  object_name IN varchar2,
  partition_name IN varchar2 DEFAULT NULL,
  object_type IN binary_integer DEFAULT TABLE_OBJECT,
  repair_table_name IN varchar2 DEFAULT 'REPAIR_TABLE',
  flags IN boolean DEFAULT NULL,
  fix_count OUT binary_integer)

```

19-4 fix_corrupt_blocks

```

schema_name
object_name
partition_name
( )
name
partition_

object_type
( )
TABLE_OBJECT
INDEX_OBJECT
TABLE_OBJECT

repair_table_name
( )
가
SYS

flags ( )

fix_count

```

dump_orphan_keys

가

```

procedure dump_orphan_keys(
  schema_name IN varchar2,
  object_name IN varchar2,

```

```
object_type IN binary_integer DEFAULT TABLE_OBJECT);
```

19-6 rebuild_freelists

```

schema_name
object_name          가
partition_name      가
(                   )          partition_name

object_type          . TABLE_OBJECT   INDEX_OBJECT
(                   )          TABLE_OBJECT

```

skip_corrupt_blocks

```

.          가
.          가

procedure skip_corrupt_blocks(
  schema_name IN varchar2,
  object_name IN varchar2,
  partition_name IN varchar2 DEFAULT NULL,
  object_type IN binary_integer DEFAULT TABLE_OBJECT,
  flags IN boolean DEFAULT SKIP_FLAG);

```

19-7 skip_corrupt_blocks

```

schema_name
object_name
partition_name . partition_
( ) name .

object_type . TABLE_OBJECT CLUSTER_OBJECT .
( ) TABLE_OBJECT .

flags ` SKIP_FLAG
( ) . NOSKIP_FLAG
ORA-1578

```

admin_tables

```

procedure admin_tables(
  table_name IN varchar2,
  table_type IN binary_integer,
  action IN binary_integer,
  tablespace IN varchar2 DEFAULT NULL);

```

19-8 admin_tables

| table_name | table_type | action | tablespace |
|--------------|--------------|-----------------------------|------------|
| KEY_TABLE | ORPHAN_TABLE | CREATE_ACTION, PURGE_ACTION | SYS |
| REPAIR_TABLE | REPAIR_TABLE | DROP_ACTION | SYS |
| ORPHAN_* | ORPHAN_TABLE | DROP_ACTION | SYS |
| REPAIR_* | REPAIR_TABLE | DROP_ACTION | SYS |

DBMS_REPAIR

| | | | |
|-------|---------------|---|--|
| 942 | | | |
| 1418 | 가 | | |
| 24120 | | | |
| 24121 | CASCADE_FLAG | | |
| 24122 | | | |
| 24124 | 가 | | |
| 24126 | CASCADE_FLAG가 | 가 | |

| | | | |
|-------|---|---------------|-----|
| 24127 | 가 | CREATE_ACTION | . |
| 24128 | | | . |
| 24129 | | - 'ORPHAN_' | 가 . |
| 24129 | | 'REPAIR_' | . |
| 24131 | | | . |
| 24132 | | | . |

11 19

.

,

CREATE SCHEMA

SQL CREATE SCHEMA

. CREATE SCHEMA

가

```
CREATE SCHEMA AUTHORIZATION scott
CREATE TABLE dept (
    deptno NUMBER(3,0) PRIMARY KEY,
    dname VARCHAR2(15),
    loc VARCHAR2(25)
CREATE TABLE emp (
    empno NUMBER(5,0) PRIMARY KEY,
    ename VARCHAR2(15) NOT NULL,
    job VARCHAR2(10),
    mgr NUMBER(5,0),
    hiredate DATE DEFAULT (sysdate),
    sal NUMBER(7,2),
    comm NUMBER(7,2),
    deptno NUMBER(3,0) NOT NULL
CONSTRAINT dept_fkey REFERENCES dept)
CREATE VIEW sales_staff AS
SELECT empno, ename, sal, comm
FROM emp
WHERE deptno = 30
WITH CHECK OPTION CONSTRAINT sales_staff_cnst
GRANT SELECT ON sales_staff TO human_resources;
```

CREATE SCHEMA
Oracle

ANSI CREATE TABLE CREATE VIEW
STORAGE

SQL RENAME

RENAME
RENAME
STAFF
RENAME sales_staff TO dept_30;

: PL/SQL

PL/SQL 가

: Oracle 20-23
“ ”

ANALYZE ANY

DML 가
“ ”

가

가

PCTFREE가

Oracle8i Tuning

14 “ ”

SQL ANALYZE STATISTICS

SQL 가
Oracle

SQL ANALYZE

ANALYZE COMPUTE STATISTICS ESTIMATE STATISTICS

COMPUTE
STATISTICS

가

가

ESTIMATE
STATISTICS

Oracle

:
STATISTICS COMPUTE
STATISTICS 가 ESTIMATE
가

: SQL ANALYZE

Oracle8i SQL

Oracle8i Reference

USER_INDEXES, ALL_INDEXES, DBA_INDEXES

USER_TABLES, ALL_TABLES, DBA_TABLES

USER_TAB_COLUMNS, ALL_TAB_COLUMNS, DBA_TAB_COLUMNS

:

| | |
|---|---|
| . | * |
|---|---|

*

가

| | |
|---|---|
| . | * |
|---|---|

| | |
|---|---|
| . | * |
|---|---|

*

/

/

()

: ANALYZE

가

EMP

ANALYZE TABLE emp COMPUTE STATISTICS;

1064

EMP

ANALYZE TABLE emp ESTIMATE STATISTICS;

ESTIMATE STATISTICS

SAMPLE

Oracle

ANALYZE TABLE emp
ESTIMATE STATISTICS
SAMPLE 2000 ROWS;
ANALYZE TABLE emp
ESTIMATE STATISTICS
SAMPLE 33 PERCENT;

50%

Oracle

50%

ANALYZE

DELETE STATISTICS

EMP

ANALYZE TABLE emp DELETE STATISTICS;

SQL
,
SQL

SQL

SQL

DBMS_UTILITY.-ANALYZE_SCHEMA()

(COMPUTE ', ' ESTIMATE ' ' DE-
LETE)

DBMS_DDL.-ANALYZE_OBJECTS()

(CLUSTER ', ' TABLE ' ' INDEX),
(COMPUTE ', ' ESTIMATE ' ' DELETE)

ANALYZE

VALIDATE STRUCTURE

가
가

가
가

가

가

EMP

ANALYZE TABLE emp VALIDATE STRUCTURE;

CASCADE

EMP

ANALYZE TABLE emp VALIDATE STRUCTURE CASCADE;

ANALYZE

LIST CHAINED ROWS

LIST CHAI-
NED ROWS

LIST CHAI-

```

ANALYZE...LIST CHAINED ROWS
      Oracle          UTLCHAIN.SQL
. UTLCHAIN.SQL
CHAINED_ROWS
CHAINED_ROWS          ANALYZE
.          , EMP_DEPT
          CHAINED_ROWS

```

```
ANALYZE CLUSTER emp_dept LIST CHAINED ROWS INTO chained_rows;
```

```
: UTLCHAIN.SQL
```

Oracle8i Tuning

() 가

1. DELETE

```
DELETE , EMP
```

```
DELETE FROM emp;
```

2. DROP CREATE

```
, EMP
```

```
DROP TABLE emp;
CREATE TABLE emp ( . . . );
```

3. TRUNCATE

```
SQL TRUNCATE
, EMP
```

```
TRUNCATE TABLE emp;
```

DELETE
DELETE

, CPU ,

가

. DELETE

TRUNCATE DROP

DROP CREATE

TRUNCATE

TRUNCATE

. TRUNCATE

. TRUNCATE DDL

. TRUNCATE

()

. TRU-

NCATE

DROP ANY TABLE

TRUNCATE

TRUNCATE DELETE

TRUNCATE

가

DELETE

TRUNCATE REUSE STORAGE DROP STORAGE

DROP STORAGE

MINEXTENTS
가

REUSE STORAGE

EMP_DEPT

TRUNCATE CLUSTER emp_dept REUSE STORAGE;

REUSE DROP STORAGE

: 25 “ ”

가 () 가
Oracle

DML

INSERT

UPDATE

DELETE

STARTUP

SHUTDOWN

LOGON

가 가 .

TRUE

TRUE

ALTER TABLE

ALTER
ALTER TRIGGER

ALTER ANY TABLE

ALTER ANY TRIGGER

:

Oracle8i

Oracle8i SQL

ALTER TRIGGER INVENTORY ENABLE REORDER

ALTER TRIGGER reorder ENABLE;

ENABLE ALL TRIGGER ALTER TABLE INVENTORY

ALTER TABLE inventory
ENABLE ALL TRIGGERS;

가

가

가

```
ALTER TRIGGER      DISABLE
INVENTORY          REORDER
```

```
ALTER TRIGGER reorder DISABLE;
```

```
ALTER TABLE      DISABLE ALL TRIGGERS
, INVENTORY
```

```
ALTER TABLE inventory
  DISABLE ALL TRIGGERS;
```

```
가
가
, - 가 , NULL
( " " )
```

가

: . 20-21 “ ”

Oracle8i

가

가

가

가

OLTP

가

가

EXCHANGE PARTITION

가

1000

)

(,

가

가 가 가
OLTP

DML

EXCEPTIONS

: EXCEPTIONS

Oracle8i Reference

:

가

1.

2. (, ,)

3.

4.

가

Oracle

SET CONSTRAINTS SET CONSTRAINTS
SET CONSTRAINTS

: SET CONSTRAINT

: SET CONSTRAINTS

Oracle8i SQL

Oracle8i

가

UNIQUE FOREIGN

가
가

FOREIGN

가
FOREIGN, UNIQUE PRIMARY 가

```
CREATE TABLE dept (  
    deptno NUMBER PRIMARY KEY,  
    dname VARCHAR2 (30)  
);  
CREATE TABLE emp (  
    empno NUMBER,  
    ename VARCHAR2 (30),  
    deptno NUMBER REFERENCES (dept),  
    CONSTRAINT epk PRIMARY KEY (empno) DEFERRABLE,  
    CONSTRAINT efk FOREIGN KEY (deptno)  
    REFERENCES (dept. deptno) DEFERRABLE);  
INSERT INTO dept VALUES (10, 'Accounting');  
INSERT INTO dept VALUES (20, 'SALES');  
INSERT INTO emp VALUES (1, 'Corleone', 10);  
INSERT INTO emp VALUES (2, 'Costanza', 20);  
COMMIT;
```

SET CONSTRAINT efk DEFERRED;
UPDATE dept SET deptno = deptno + 10
WHERE deptno = 20;

```
SELECT * from emp ORDER BY deptno;  
EMPNO  ENAME          DEPTNO  
-----  
1      Corleone        10  
2      Costanza        20
```

UPDATE emp SET deptno = deptno + 10
WHERE deptno = 20;

```
SELECT * FROM emp ORDER BY deptno;  
  
EMPNO  ENAME          DEPTNO  
-----  
1      Corleone        10  
2      Costanza        30
```

COMMIT;

가

DML

SET CONSTRAINTS ALL DEFERRED;

: SET CONSTRAINTS
ALTER SESSION SET CONSTRAINTS

() COMMIT SET CONSTRAINTS ALL
IMMEDIATE

가

가

UNIQUE PRIMARY Oracle 가 가
Oracle
Oracle

UNIQUE 가 PRIMARY UNIQUE PRIMARY

: 가 UNIQUE PRIMARY

CREATE TABLE ALTER TABLE

ENABLE

DISABLE
ENABLE [VALIDATE]
DISABLE [NOVALIDATE]
ENABLE NOVALIDATE
DISABLE VALIDATE

Oracle

CREATE TABLE ALTER TABLE

```
CREATE TABLE emp (  
    empno NUMBER(5) PRIMARY KEY DISABLE, . . . ;  
ALTER TABLE emp  
    ADD PRIMARY KEY (empno) DISABLE;
```

ALTER TABLE

: 20-21 "

CREATE TABLE ALTER TABLE

```
CREATE TABLE emp (  
    empno NUMBER(5) CONSTRAINT emp.pk PRIMARY KEY, . . . ;  
ALTER TABLE emp  
    ADD CONSTRAINT emp.pk PRIMARY KEY (empno);
```

ALTER TABLE

DROP

ALTER TABLE

```
ALTER TABLE dept
  DROP UNIQUE (dname, loc);
ALTER TABLE emp
  DROP PRIMARY KEY,
  DROP CONSTRAINT dept_fkey;
```

UNIQUE PRIMARY KEY
FOREIGN KEY가 UNIQUE PRIMARY KEY
DROP CASCADE CONSTRAINTS

CREATE TABLE

EXCEPTIONS ALTER TABLE ENABLE
EXCEPTIONS EXCEPTIONS ROWID,

: ENABLE EXCEPTIONS

EXCEPTIONS UTLEXCPT.SQL

가 가

DEPT PRIMARY KEY
EXCEPTIONS

```
ALTER TABLE dept ENABLE PRIMARY KEY EXCEPTIONS INTO exceptions;
```

```
DEPT                                PRIMARY KEY  
SYS_C00610                          EXCEPTIONS
```

```
SELECT * FROM exceptions;
```

| ROWID | OWNER | TABLE_NAME | CONSTRAINT |
|--------------------|-------|------------|------------|
| ----- | ----- | ----- | ----- |
| AAAAZ9AABAAABvqAAB | SCOTT | DEPT | SYS_C00610 |
| AAAAZ9AABAAABvqAAG | SCOTT | DEPT | SYS_C00610 |

```
SELECT deptno, dname, loc FROM dept, exceptions  
       WHERE exceptions.constraint = 'SYS_C00610'  
       AND dept.rowid = exceptions.row_id;
```

| DEPTNO | DNAME | LOC |
|--------|------------|----------|
| ----- | ----- | ----- |
| 10 | ACCOUNTING | NEW YORK |
| 10 | RESEARCH | DALLAS |

```
UPDATE dept SET deptno = 20 WHERE dname = 'RESEARCH';  
DELETE FROM exceptions WHERE constraint = 'SYS_C00610';  
COMMIT;
```

: 가

: UTLEXCPT.SQL

20-1 가

20-1

| | | |
|-------------------------------------|---------|---------|
| | | |
| CREATE , , | 가 VALID | 1 |
| ALTER (ADD MODIFY) RENAME , , , | 가 VALID | INVALID |
| DROP , , , , , , , | : | INVALID |

1

20-1

()

| | | |
|--|---------------------|------------------------|
| | | |
| CREATE , ² | 가 VALID, INVALID | ¹ |
| CREATE OR REPLACE ² | 가 VALID, INVALID | INVALID |
| REVOKE ³ ON TO/FROM | | LID ³ INVA- |
| REVOKE ³ ON TO/FROM PUBLIC | | INVALID ³ |
| REVOKE ⁴ TO/FROM | | INVALID ⁴ |
| REVOKE ⁴ TO/FROM PUBLIC | | INVALID ⁴ |
| ¹ 가 가 . ² , ³ SELECT, INSERT, UPDATE, DELETE, EXECUTE DML 가 . ⁴ SELECT, INSERT, UPDATE, DELETE ANY TABLE, EXECUTE ANY PROCEDURE DML 가 . | | |

Oracle PL/SQL SQL COMPILE
가 가 .

USER_/ALL_/DBA_OBJECTS

가 ALTER ANY TABLE
. ALTER VIEW COMPILER
EMP_DEPT

ALTER VIEW emp_dept COMPILER;

가 ALTER ANY
PROCEDURE . ALTER PROCEDURE/FUNCTION
COMPILE
UPDATE_SALARY

ALTER PROCEDURE update_salary COMPILER;

가 ALTER ANY PROCE-
DURE . ALTER PACKAGE COMPILER
ACCT_MGMT

ALTER PACKAGE acct_mgmt COMPILER BODY;
ALTER PACKAGE acct_mgmt COMPILER PACKAGE;

Oracle

1. Oracle SQL
, SCOTT.EMP SCOTT

a. Oracle . b . 가

b. 가 Oracle c .

c. 가 . b 가 .
가
가

Oracle .
c 가 Oracle

2. 가 .
NO가 SCOTT , SCOTT.EMP.DEPT-
EMP가 DEPTNO EMP
가 DEPTNO , ,

Oracle . ,
Oracle .

가 , ,
, 가 ,
가 SYSTEM 가

가

가

PCTINCREASE , NEXT

:

.

USER\$ PCTINCREASE 0 , NEXT 2K

SEG\$

()

OBJ\$

()

I_OBJ1 I_OBJ2

UNDO\$

I_UNDO1

FET\$

가

UET\$

TS\$

FILE\$

I_FILE1

FILEXT\$

AUTOEXTEND

TAB\$

()

I_TAB1

```

CLU$
IND$                                I_IND1
ICOL$                                가 (
                                   ) I_ICOL1
COL$                                I_COL1 I_COL2
CON$                                (
                                   I_CON1 I_CON2
CDEF$    CON$                      I_CDEF1, I_CDEF2
          I_CDEF3
CCOL$                                가 (
                                   ) I_CCOL1
USER$                                I_USER1
TSQ$                                (
                                   )
C_OBJ#    TAB$, CLU$, ICOL$, IND$ COL$
          I_OBJ#
C_TS#     FET$, TS$  FILE$          I_TS#
C_USER#   USER$  TSQ$              I_USER#
C_COBJ#   CDEF$  CCOL$             I_COBJ#

.

C_TS#
C_OBJ#

```

CON\$,C_COBJ#

C_USER#

가

가

가

가

ORA-1653

“failed to allocate extent of size num in tablespace ‘name’ ”

가

PRIMARY KEY

ORA-1547

Oracle

DBA_SEGMENTS

CON\$ C_COBJ#

CON\$ C_COBJ#

: 20-33 “ 7: 가

”

ALL_OBJECTS, USER_OBJECTS, DBA_OBJECTS

ALL_CATALOG, USER_CATALOG, DBA_CATALOG

ALL_TABLES, USER_TABLES, DBA_TABLES

ALL_TAB_COLUMNS, USER_TAB_COLUMNS, DBA_TAB_COLUMNS

ALL_TAB_COMMENTS, USER_TAB_COMMENTS

ALL_COL_COMMENTS, USER_COL_COMMENTS, DBA_COL_COMMENTS

ALL_VIEWS, USER_VIEWS, DBA_VIEWS

ALL_INDEXES, USER_INDEXES, DBA_INDEXES
 ALL_IND_COLUMNS, USER_IND_COLUMNS, DBA_IND_COLUMNS
 USER_CLUSTERS, DBA_CLUSTERS
 USER_CLU_COLUMNS, DBA_CLU_COLUMNS
 ALL_SEQUENCES, USER_SEQUENCES, DBA_SEQUENCES
 ALL_SYNONYMS, USER_SYNONYMS, DBA_SYNONYMS
 ALL_DEPENDENCIES, USER_DEPENDENCIES, DBA_DEPENDENCIES

USER_SEGMENTS
 DBA_SEGMENTS

USER_EXTENTS
 DBA_EXTENTS
 USER_FREE_SPACE
 DBA_FREE_SPACE

Oracle

20-2 SQL PL/SQL

20-2 : 가

| | |
|--------------------------------------|--------------|
| | |
| dbms_space.unused_space | (,) |
| dbms_space.free_blocks | (,) |
| dbms_session.free_unused_user_memory | (100K) 가 |

1:

가

```
SELECT object_name, object_type FROM user_objects;
```

| OBJECT_NAME | OBJECT_TYPE |
|----------------|-------------|
| EMP_DEPT | CLUSTER |
| EMP | TABLE |
| DEPT | TABLE |
| EMP_DEPT_INDEX | INDEX |
| PUBLIC_EMP | SYNONYM |
| EMP_MGR | VIEW |

2:

```
      ,      ,      ,      ,  
      _COLUMNS  
      ,      EMP DEPT
```

```
SELECT table_name, column_name, data_default  
FROM user_tab_columns  
WHERE table_name = 'DEPT' OR table_name = 'EMP';
```

| TABLE_NAME | COLUMN_NAME | DATA_DEFAULT |
|------------|-------------|--------------|
| DEPT | DEPTNO | |
| DEPT | DNAME | |
| DEPT | LOC | 'NEW YORK' |
| EMP | EMPNO | |
| EMP | ENAME | |
| EMP | JOB | |
| EMP | MGR | |
| EMP | HIREDATE | SYSDATE |
| EMP | SAL | |
| EMP | COMM | |
| EMP | DEPTNO | |

가 가
가 .

3:

가
ALL/USER/DBA_DEPENDENCIES
, ALL/USER/DBA_SYNONYMS
WARD 가

```
SELECT table_owner, table_name, synonym_name
FROM sys.dba_synonyms
WHERE owner = 'WARD';
```

| TABLE_OWNER | TABLE_NAME | SYNONYM_NAME |
|-------------|------------|--------------|
| SCOTT | DEPT | DEPT |
| SCOTT | EMP | EMP |

4:

```
SELECT segment_name, tablespace_name, bytes, blocks, extents
FROM sys.dba_segments
WHERE segment_type = 'ROLLBACK';
```

| SEGMENT_NAME | TABLESPACE_NAME | BYTES | BLOCKS | EXTENTS |
|--------------|-----------------|--------|--------|---------|
| RS1 | SYSTEM | 20480 | 10 | 2 |
| RS2 | TS1 | 40960 | 20 | 3 |
| SYSTEM | SYSTEM | 184320 | 90 | 3 |

5:

DBA_EXTENTS

```
SELECT segment_name, bytes, blocks
FROM sys.dba_extents
WHERE segment_type = 'ROLLBACK';
```

| SEGMENT_NAME | BYTES | BLOCKS |
|--------------|-------|--------|
| RS1 | 10240 | 5 |
| RS1 | 10240 | 5 |
| SYSTEM | 51200 | 25 |
| SYSTEM | 51200 | 25 |
| SYSTEM | 51200 | 25 |

SYSTEM 가 50K
RS1 10K

6: ()
()
DBA_FREE_SPACE 가 ,

```
SELECT tablespace_name, file_id, bytes, blocks
FROM sys.dba_free_space;
```

| TABLESPACE_NAME | FILE_ID | BYTES | BLOCKS |
|-----------------|---------|----------|--------|
| SYSTEM | 1 | 8120320 | 3965 |
| SYSTEM | 1 | 10240 | 5 |
| TS1 | 2 | 10432512 | 5094 |

7: 가

DBA_FREE_SPACE DBA_SEGMENTS, DBA_TABLES, DBA_CLUSTERS,
DBA_INDEXES, DBA_ROLLBACK_SEGS
가

가 가

SEG.MAX_EXTENTS 가
가

| | | | |
|-------|--------------|---------|--------|
| | 가 | 가 | |
| 가 | : MAXEXTENTS | STORAGE | |
| TENTS | 가 | . | MAXEX- |
| | | . | |

```

SELECT seg.owner, seg.segment_name,
       seg.segment_type, seg.tablespace_name,
       DECODE(seg.segment_type,
              'TABLE', t.next_extent,
              'CLUSTER', c.next_extent,
              'INDEX', i.next_extent,
              'ROLLBACK', r.next_extent)
FROM sys.dba_segments seg,
     sys.dba_tables t,
     sys.dba_clusters c,
     sys.dba_indexes i,
     sys.dba_rollback_segs r

WHERE ((seg.segment_type = 'TABLE'
       AND seg.segment_name = t.table_name
       AND seg.owner = t.owner
       AND NOT EXISTS (SELECT tablespace_name
                       FROM dba_free_space free
                       WHERE free.tablespace_name = t.tablespace_name
                             AND free.bytes >= t.next_extent))
OR (seg.segment_type = 'CLUSTER'
   AND seg.segment_name = c.cluster_name
   AND seg.owner = c.owner
   AND NOT EXISTS (SELECT tablespace_name
                   FROM dba_free_space free
                   WHERE free.tablespace_name = c.tablespace_name
                         AND free.bytes >= c.next_extent))
OR (seg.segment_type = 'INDEX'
   AND seg.segment_name = i.index_name
   AND seg.owner = i.owner
   AND NOT EXISTS (SELECT tablespace_name
                   FROM dba_free_space free
                   WHERE free.tablespace_name = i.tablespace_name
                         AND free.bytes >= i.next_extent))
OR (seg.segment_type = 'ROLLBACK'
   AND seg.segment_name = r.segment_name

```




: Parallel Server
Concepts and Administration

Oracle

Oracle8i Parallel Server

가

Oracle8i

가
가 SYSTEM

SYSTEM
SYSTEM

SYSTEM
가

SYSTEM

SACTIONS 가 가 TRAN-
, TRANSACTIONS_PER_ROLLBACK_SEGMENT

가
TRANSACTIONS/TRANSACTIONS_PER_ROLLBACK_SEGMENT
TRAN-

SCTIONS/TRANSACTIONS_PER_ROLLBACK_SEGMENT

: Oracle Parallel Server
SYSTEM
Oracle8i Parallel Server Concepts and Administration

SYSTEM 가
SYSTEM Oracle
가 SYSTEM
SYSTEM
Oracle SYSTEM

가

가

Parallel Server

Parallel Server
가 SYSTEM
가

가

Oracle Parallel Server

: Parallel Server
Server Concepts and Administration

Oracle8i Parallel

Oracle8i

NS_PER_ROLLBACK_SEGMENT
가
가
TRANSACTIONS/TRANSACTION-
ROLLBACK_SEGMENTS

SQL 10%가 SQL 10%가
 MAXEXTENTS

가
 가
 가 10 20 가

T / n = s

T =

n =

s =

s s , MINEXTENTS n INITIAL NEXT
 s가 가 PCTINCREASE
 0

OPTIMAL
 가

OPTIMAL
 "too old" 가
 가
 OPTIMAL
 OPTIMAL
 "snapshot"
 OPTIMAL
 OPTIMAL
 ROLLBACK
 OPTIMAL
 MONITOR
 Size, High Water 가
 Size, Optimal
 OPTIMAL
 Occurrences, Wraps
 Occurrences, Extends
 Shrinks Oracle
 Average Size, Shrunk Oracle
 Average Size, Active
 가
 OPTIMAL
 가
 Average Sizes, Active

가

21-1 OPTIMAL

| Shrinks | Average Sizes, Shrunk | |
|---------|-----------------------|---|
| Low | Low | Average Sizes, active가 Sizes, Optimal 가 OPTIMAL OPTIMAL |
| Low | High | : OPTIMAL |
| High | Low | OPTIMAL |
| High | High | . Shrinks가 OPTIMAL |

가

“ ”

가

가

가

가

CREATE ROLLBACK SEGMENT
 . SQL CREATE ROLLBACK SEGMENT

가

USERS
USERS_RS

USERS

```
CREATE PUBLIC ROLLBACK SEGMENT users_rs TABLESPACE users;
```

ROLLBACK_SEGMENTS 가

RS1 RS2

ROLLBACK_SEGMENTS

```
ROLLBACK SEGMENTS= (RS1, RS2)
```

: 가

21-10

“

”

가 DATA1_RS

50K

50K

750K

15

가
100 .
가

```
CREATE PUBLIC ROLLBACK SEGMENT datal_rs
    TABLESPACE users
    STORAGE (
        INITIAL 50K
        NEXT 50K
        OPTIMAL 750K
        MINEXTENTS 15
        MAXEXTENTS 100);
```

SQL ALTER ROLLBACK SEGMENT

DATA1_RS 가

```
ALTER PUBLIC ROLLBACK SEGMENT datal_rs
    STORAGE (MAXEXTENTS 120);
```

```
SYSTEM OPTIMAL
: (OPTIMAL )
21-2 “ ”
```

ALTER ROLLBACK SEGMENT

: SYSTEM

가

(DBA_ROLLBACK_SEGS)가
OFFLINE PARTLY AVAILABLE
. SQL ALTER ROLLBACK SEGMENT ONLINE

PARTLY AVAILABLE

PARTLY AVAILABLE

RECO가

PARTLY AVAILABLE

DBA가

가 PARTLY AVAILABLE
PARTLY AVAILABLE

가

가

가

PARTLY AVAILABLE

ROLLBACK_SEGMENTS

가

:

USER_RS_2

ALTER ROLLBACK SEGMENT user_rs_2 ONLINE;

DBA_ROLLBACK_SEGS

ONLINE

: ROLLBACK_SEGMENTS DBA_ROLLBACK_SEGS
Oracle8i Reference

21-14 “

”

ALTER ROLLBACK SEGMENT

OFFLINE DBA_ROLLBACK_SEGS
“ONLINE” 가

USER_RS_2

ALTER ROLLBACK SEGMENT user_rs_2 OFFLINE;

Oracle

“OFF-

LINE”

(,)
Oracle

가

DBA_ROLLBACK_

SEGS
V\$ROLLSTAT

ONLINE
PENDING OFFLINE

PENDING OFFLINE

가

: 21-14 “ ”

DBA_ROLLBACK_SEGS V\$ROLLSTAT Oracle8i Reference
ence

SET TRANSACTION USE ROLLBACK SEGMENT

가 가
가

SET TRANSACTION USE ROLLBACK SEGMENT
가
NT SET TRANSACTION USE ROLLBACK SEGMENT

, ()

SET TRANSACTION USE ROLLBACK SEGMENT large_rsl;

가
Oracle 가

가 OFFLINE
가 ONLINE, PARTLY AVAILABLE, NEEDS
RECOVERY INVALID 가 INVALID

DROP ROLLBACK SEGMENT

가 SQL DROP ROLLBACK SEGMENT

DATA1_RS

DROP PUBLIC ROLLBACK SEGMENT data1_rs;

DROP ROLLBACK SEGMENT

PUBLIC

| | |
|---------------------|---|
| : ROLLBACK_SEGMENTS | 가 |
| ROLLBACK_SEGMENTS | 가 |

가 INVALID
가 DBA_ROLLBACK_SEGS

: DBA_ROLLBACK_SEGS

Oracle8i Reference

MONITOR

21-5

“

”

DBA_ROLLBACK_SEGS

SELECT segment_name, tablespace_name, status
FROM sys.dba_rollback_segs;

| SEGMENT_NAME | TABLESPACE_NAME | STATUS |
|--------------|-----------------|--------|
| SYSTEM | SYSTEM | ONLINE |
| PUBLIC_RS | SYSTEM | ONLINE |
| USERS_RS | USERS | ONLINE |

가 .

USER_SEGMENTS

DBA_SEGMENTS

```
SELECT segment_name, tablespace_name, bytes, blocks, extents
FROM sys.dba_segments
WHERE segment_type = 'ROLLBACK';
```

| SEGMENT_NAME | TABLESPACE_NAME | BYTES | BLOCKS | EXTENTS |
|--------------|-----------------|--------|--------|---------|
| RS1 | SYSTEM | 20480 | 10 | 2 |
| RS2 | TS1 | 40960 | 20 | 3 |
| SYSTEM | SYSTEM | 184320 | 90 | 3 |

가

DBA_ROLLBACK_SEGS

ONLINE

가

```
SELECT name, xacts 'ACTIVE TRANSACTIONS'
FROM v$rollname, v$rollstat
WHERE status = 'PENDING OFFLINE'
AND v$rollname.usn = v$rollstat.usn;
```

| NAME | ACTIVE TRANSACTIONS |
|------|---------------------|
| RS2 | 3 |

가 Parallel Server
가

가

```
SELECT segment_name, tablespace_name, owner
       FROM sys.dba_rollback_segs;
```

| SEGMENT_NAME | TABLESPACE_NAME | OWNER |
|--------------|-----------------|--------|
| SYSTEM | SYSTEM | SYS |
| PUBLIC_RS | SYSTEM | PUBLIC |
| USERS_RS | USERS | SYS |

(가

)

```
SELECT segment_name, segment_type, tablespace_name
       FROM sys.dba_segments
WHERE segment_type = 'DEFERRED ROLLBACK';
```

| SEGMENT_NAME | SEGMENT_TYPE | TABLESPACE_NAME |
|--------------|-------------------|-----------------|
| USERS_RS | DEFERRED ROLLBACK | USERS |



가 가

가

가 가 가 가

Oracle

Oracle

가 Oracle

가 가
.
:
tems Oracle8i Distributed Database Sys-
23-11 “ ” .

가

가 가
가
:

가 SELECT INSERT DELETED SCOTT EMP

, 가
, 가

ORA_ENCRYPT_LOGIN TRUE
 DBLINK_ENCRYPT_LOGIN TRUE
 " "

DES()

Oracle DBLINK_ENCRYPT_LOGIN Oracle
 ORA_ENCRYPT_LOGIN

Oracle Oracle
 LOGIN Oracle DBLINK_ENCRYPT_LOGIN 가 ORA_ENCRYPT_
 가 FALSE

TRUE 가 가

, 가 가
 (가)

가 가

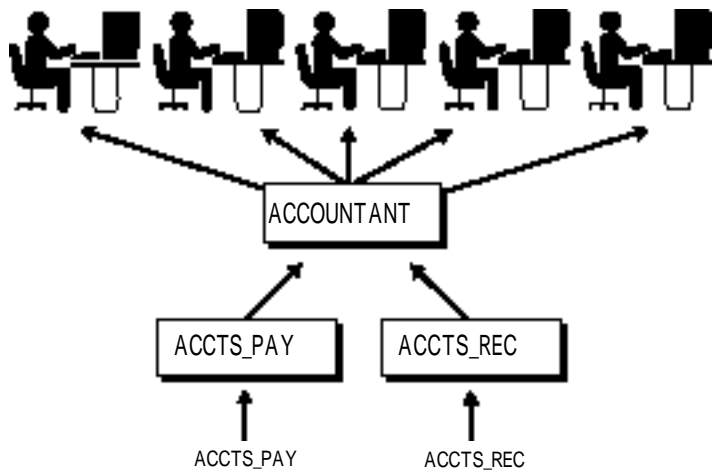
,

가
 가
 ACCTS_PAYABLE ACCTS_RECEIVABLE

- 가
1. ACCOUNTANT
 2. ACCOUNTANT ACCTS_RECEIVABLE ACCTS_PAYABLE
 3. ACCOUNTANT

22-1

22-1



ACCOUNTANT

가

ACCOUNTANT

ACCTS_RECEIVABLE

ACCTS_PAYABLE

ACCOUNTANT

ACCOUNTANT

가

가

가

가

가

가

가

SYS SYSTEM

가

SYS SYSTEM

SYS SYSTEM

: SYS SYSTEM

23-15

“ ”

SYSDBA

SYSDBA/SYSOPER)

. SYS

(, connect as

가

가

1. , DBA_OBJECTS, DBA_TUNE, DBA_SECURITY, DBA_MAINTAIN, DBA_RECOV, DBA_NEW) 6가 (
- 2.
- 3.

가

가

CREATE TABLE, CREATE PROCEDURE

:

가

가

가

가 . 가

가

가

가

:

23-15

“

”

가 (, , Forms

)

, Oracle

Oracle

DBA

Oracle

가

```
. DBA CREATE PROFILE  
. DBA
```

```
ASHWINI 4  
30 . 30
```

```
CREATE PROFILE prof LIMIT  
  FAILED_LOGIN_ATTEMPTS 4  
  PASSWORD_LOCK_TIME 30;  
ALTER USER ashwini PROFILE prof;
```

```
DBA가 ACCOUNT_LOCK_  
TIME . DBA가 ACCOUNT_LOCK_TIME UNLIMITED  
가  
DBA가
```

```
가 0
```

가

가

```
: CREATE PROFILE
```

Oracle8i SQL

```
DBA CREATE PROFILE
```

DBA가


```

CREATE PROFILE prof LIMIT
  FAILED_LOGIN_ATTEMPTS 4
  PASSWORD_LOCK_TIME 30
  PASSWORD_LIFE_TIME 90;
ALTER USER ashwini PROFILE prof;

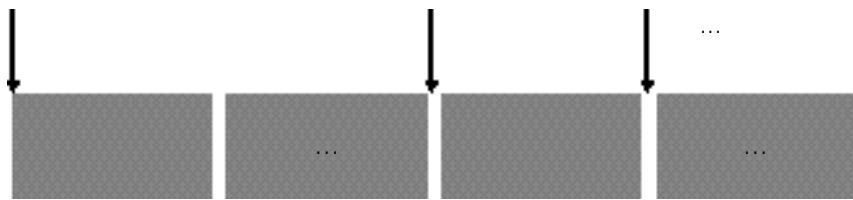
```

DBA CREATE PROFILE

가
가
가

22-2

22-2



, 70 100 60 3 가 60
가 3 3 가 3

```

CREATE PROFILE prof LIMIT
  FAILED_LOGIN_ATTEMPTS 4
  ACCOUNT_LOCK_TIME 30
  PASSWORD_GRACE_TIME 3;
ALTER USER ashwini PROFILE prof;

```

가

: CREATE PROFILE

Oracle8i SQL

DBA CREATE PROFILE

가

DBA 가 60

```
CREATE PROFILE prof LIMIT
  PASSWORD_REUSE_TIME 60
  PASSWORD_REUSE_MAX UNLIMITED;
```

가

```
CREATE PROFILE prof LIMIT
  PASSWORD_REUSE_MAX 3
  PASSWORD_REUSE_TIME UNLIMITED;
```

```
  : PASSWORD_REUSE_TIME    PASSWORD_REUSE_MAX
                                UNLIMITED
```

Oracle
(utlpwdmg.sql)

PL/SQL

4

ID

welcome, account, database, user

```
:          ALTER USER
          ALTER USER
          , OCIPasswordChange()
```

DBA PL/SQL

DBA가 PL/SQL

```
routine_name (
userid_parameter IN VARCHAR(30),
password_parameter IN VARCHAR(30),
old_password_parameter IN VARCHAR(30)
)
RETURN BOOLEAN
```

```
CREATE/ALTER PROFILE profile_name LIMIT
PASSWORD_VERIFY_FUNCTION routine_name
```

SYS가

:

SYS

connect sys/

~~password~~ as sysdba .

```
CREATE OR REPLACE FUNCTION verify_function
(username varchar2,
 password varchar2,
 old_password varchar2)
RETURN boolean IS
n boolean;
m integer;
differ integer;
isdigit boolean;
ischar boolean;
ispunct boolean;
digitarray varchar2(20);
punctarray varchar2(25);
chararray varchar2(52);

BEGIN
    digitarray:= '0123456789';
    chararray:= 'abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ';
    punctarray:= '!"#$%&()' '*+,-/;:<=>?_';

    --Check if the password is same as the username
    IF password = username THEN
        raise_application_error(-20001, 'Password same as user');
    END IF;

    --Check for the minimum length of the password
    IF length(password) < 4 THEN
        raise_application_error(-20002, 'Password length less than 4');
    END IF;

    --Check if the password is too simple. A dictionary of words may
    --be maintained and a check may be made so as not to allow the
    --words that are too simple for password.
    IF NLS_LOWER(password) IN ('welcome', 'database', 'account', 'user',
    'password', 'oracle', 'computer', 'abcd') THEN raise_application_
    error(-20002, 'Password too simple');
    END IF;

    --Check if the password contains at least one letter, one digit
    --and one punctuation mark.
    --1. Check for the digit
    --You may delete 1. and replace with 2. or 3.
    isdigit:=FALSE;
    m := length(password);
    FOR i IN 1..10 LOOP
        FOR j IN 1..m LOOP
            IF substr(password,j,1) = substr(digitarray,i,1) THEN
                isdigit:=TRUE;
            END IF;
        END LOOP;
    END LOOP;
END;
```

```

        GOTO findchar;
    END IF;
END LOOP;
END LOOP;
IF isdigit = FALSE THEN
    raise_application_error(-20003, 'Password should contain at least
one digit, one character and one punctuation');
END IF;
    --2. Check for the character
<<findchar>>
ischar:=FALSE;
FOR i IN 1..length(chararray) LOOP
    FOR j IN 1..m LOOP
        IF substr(password,j,1) = substr(chararray,i,1) THEN
            ischar:=TRUE;
            GOTO findpunct;
        END IF;
    END LOOP;
END LOOP;
IF ischar = FALSE THEN
    raise_application_error(-20003, 'Password should contain at least
one digit one character and one punctuation');
END IF;
    --3. Check for the punctuation
<<findpunct>>
ispunct:=FALSE;
FOR i IN 1..length(punctarray) LOOP
    FOR j IN 1..m LOOP
        IF substr(password,j,1) = substr(punctarray,i,1) THEN
            ispunct:=TRUE;
            GOTO endsearch;
        END IF;
    END LOOP;
END LOOP;
IF ispunct = FALSE THEN raise_application_error(-20003,'Password
should contain at least one \ digit, one character and one
punctuation');
END IF;

<<endsearch>>

    --Check if the password differs from the previous password by at
    least 3 letters
IF old_password = '' THEN
    raise_application_error(-20004, 'Old password is null');
END IF;
    --Everything is fine; return TRUE;
differ := length(old_password) - length(password);

IF abs(differ) < 3 THEN
    IF length(password) < length(old_password) THEN

```

```
        m := length(password);
ELSE
    m:= length(old_password);
END IF;
differ := abs(differ);
FOR i IN 1..m LOOP
    IF substr(password,i,1) != substr(old_password,i,1) THEN
        differ := differ + 1;
    END IF;
END LOOP;
IF differ < 3 THEN
    raise_application_error(-20004, 'Password should differ by at
    least 3 characters');
END IF;
END IF;
--Everything is fine; return TRUE;
RETURN(TRUE);
END;
```

Oracle

:

22 “ ”

24 “ ”

Oracle

Oracle

가

가

:
가
LICENSE_MAX_SESSIONS, LICENSE_SESSIONS_
WARNING, LICENSE_MAX_USERS 가
0

: 2 “ ”

DBA) RESTRICTED SESSION (

가 Oracle . RESTRICTED SESSION

ALERT . Oracle

가

가 ALERT

Oracle 가 RESTRICTED SESSION

가 Oracle 가

Oracle “ ”

: 4-15 “ ”

Oracle 23-6 “

”

Parallel Server

가 Parallel Server
가

: TP
Oracle
Oracle

: Parallel Server
Oracle8i Parallel Server Concepts and Administration

MAX_SESSIONS

LICENSE_MAX_SESSIONS = 80

LICENSE_SESSIONS_WARNING

가

LICENSE_SESSIONS_WARNING

LICENSE_MAX_SESSIONS

SYSTEM

ALTER
100

```
ALTER SYSTEM SET LICENSE_MAX_SESSIONS = 100;
```

```
ALTER SYSTEM  
  SET LICENSE_MAX_SESSIONS = 64  
  LICENSE_SESSIONS_WARNING = 54;
```

```
ALTER SYSTEM  
RE-  
STRICTED SESSION
```

```
: Oracle  
가
```

```
Oracle      가
```

```
Oracle  
ALERT
```

```
가          가      가      가
```

```
: Parallel Server
```

```
가
```

```
Oracle8i Parallel Server Concepts and Administration
```

LICENSE_MAX_USERS . 200

LICENSE_MAX_USERS = 200

가 Oracle LICENSE_MAX_USERS
가 ALERT
가 Oracle

ALTER SYSTEM LICENSE_
MAX_USERS . 300

ALTER SYSTEM SET LICENSE_MAX_USERS = 300;

Oracle

가 LICENSE_
MAX_USERS .

ALTER SYSTEM

: Oracle
가

V\$LICENSE ,

가 Oracle

Oracle

```
SELECT sessions_max s_max,  
       sessions_warning s_warning,  
       sessions_current s_current,
```

```

sessions_highwater s_high,
users_max
FROM v$license;

```

| S_MAX | S_WARNING | S_CURRENT | S_HIGH | USERS_MAX |
|-------|-----------|-----------|--------|-----------|
| 100 | 80 | 65 | 82 | 50 |

Oracle 가 ALERT

```

SELECT COUNT(*) FROM dba_users;

COUNT(*)
-----
174

```

- 가 가
- Oracle Oracle
 - Oracle
 - Oracle 가 Oracle

가

Oracle . Oracle

Oracle

Oracle

```
CREATE USER scott IDENTIFIED BY tiger;
```

: CREATE USER ALTER USER Oracle8i SQL

Oracle8i SQL

Oracle 22 " "

가

Oracle

가

Oracle

Net8 가

```

      가
OS_AUTHENT_PREFIX              Oracle
      가              Oracle      가      가
              Oracle
              Oracle
      , OS_AUTHENT_PREFIX가      가
OS_AUTHENT_PREFIX=OPS$
      "TSMITH"      가
      , Oracle
"OPS$TSMITH"가      가
      "OPS$TSMITH"
      Oracle      "OPS$"
      Null      (      : " )
      Null      Oracle      가
OS_AUTHENT_PREFIX
      Oracle      가
CREATE USER scott IDENTIFIED EXTERNALLY;
CREATE USER IDENTIFIED EXTERNALLY
      : OS_AUTHENT_PREFIX
      Oracle      가
Net8      Net8

```

가 .
 가 ,
 REMOTE_OS_AUTHENT (FALSE) TRUE
 REMOTE_OS_AUTHENT TRUE
 RDBMS

가 .

Net8 Kerberos
 Net8 Net8
 REMOTE_OS_AUTHENT 가

Oracle8i Distributed Database Systems

, , Kerberos,

가

Oracle Oracle (OSS)가

() Oracle Oracle 가

```
CREATE USER scott IDENTIFIED GLOBALLY as '<external name>';
```

```
      : <EXTERNAL NAME>                Oracle8i Distributed Database Systems
```

가

가

```
      :                                Oracle8i Distributed Database Systems
```

Oracle

가

CREATE USER

가

가

CREATE USER

SQL CREATE USER

```
CREATE USER OPS$jward
  IDENTIFIED EXTERNALLY
  DEFAULT TABLESPACE data_ts
  TEMPORARY TABLESPACE temp_ts
```

```
QUOTA 100M ON test_ts
QUOTA 500K ON data_ts
PROFILE clerk;
```

```
:          CREATE SESSION
           . 24-9      "          "
```

```
가          가
가          가
```

```
CREATE USER
           "OPPS$" . OS_AUTHENT_PREFIX
           ( ,          )
```

```
CREATE USER jward
IDENTIFIED BY airplane
. . . ;
```

```
:          Oracle8i SQL
```

```
가          가
Oracle
```

가
가

가

가

가

SYSTEM
가

SYSTEM 가

CREATE USER JWARD DATA_TS

SQL Oracle 가 가

SYSTEM

CREATE USER JWARD TEMP_TS

가

Oracle

가
가

CREATE USER

ALL

ALTER USER

```

: (
   가   . MAX_ENABLED_ROLES   가
        가   . MAX_ENABLED_
ROLES
                                           SYS
SYSTEM  DEFAULT ROLE

```

ALTER USER

ALTER USER

ALTER USER

가

가

SQL ALTER USER

AVYRROS

```

ALTER USER avyrros
  IDENTIFIED EXTERNALLY
  DEFAULT TABLESPACE data_ts
  TEMPORARY TABLESPACE temp_ts
  QUOTA 100M ON data_ts
  QUOTA 0 ON test_ts
  PROFILE clerk;

```

ALTER USER AVYRROS

AVYRROS

AVYRROS

AVYRROS DATA_TS

100M

TEST_TS AVYRROS
AVYRROS CLERK

DBA가 ALTER USER

ALTER USER andy
IDENTIFIED BY swordfish;

()

ALTER USER DBA

: Oracle8i SQL

가
0

: 24 “ ”

가

: CREATE
SESSION

SQL ALTER SYSTEM KILL SESSION

DROP USER

DROP USER

가

SQL DROP USER

가

CASCADE

가

가

CASCADE

가

가

가

가

,

가

DROP USER jones CASCADE;

:

4-15

“

”

Oracle

CREATE PROFILE . SQL
CREATE PROFILE

CLERK

```
CREATE PROFILE clerk LIMIT  
  SESSIONS_PER_USER 2  
  CPU_PER_SESSION unlimited  
  CPU_PER_CALL 6000  
  LOGICAL_READS_PER_SESSION unlimited  
  LOGICAL_READS_PER_CALL 100  
  IDLE_TIME 30  
  CONNECT_TIME 480;
```

DEFAULT

DEFAULT

DEFAULT

DEFAULT

가

DEFAULT

DEFAULT

DEFAULT

UNLIMITED

DEFAULT

가

ALTER PROFILE

```
ALTER PROFILE default LIMIT  
  . . . ;
```

ALTER PROFILE

DEFAULT

DEFAULT

가

가 가

가

Oracle8i SQL

Oracle 가 가 가

ALTER RESOURCE

CPU_PER_SESSION, LOGICAL_READS_PER_SESSION, CONNECT_ TIME, PRIVATE_SGA . SQL ALTER RESOURCE COST

```
ALTER RESOURCE COST
  CPU_PER_SESSION 1
  LOGICAL_READS_PER_SESSION 50;
```

0 0

(, .)

NULL

가

Oracle8i SQL

URCE_LIMIT

```
ALTER SYSTEM  
  SET RESOURCE_LIMIT = TRUE;
```

```
=====
```

ALTER SYSTEM

RESOURCE_LIMIT

```
ALL_USERS  
USER_USERS  
DBA_USERS  
USER_TS_QUOTAS  
DBA_TS_QUOTAS  
USER_PASSWORD_LIMITS  
USER_RESOURCE_LIMITS
```

DBA_PROFILES
RESOURCE_COST
V\$SESSION
V\$SESSTAT
V\$STATNAME

Oracle8i Reference

:

:

가

```
CREATE PROFILE clerk LIMIT
  SESSIONS_PER_USER 1
  IDLE_TIME 30
  CONNECT_TIME 600;

CREATE USER jfee
  IDENTIFIED BY wildcat
  DEFAULT TABLESPACE users
  TEMPORARY TABLESPACE temp_ts
  QUOTA 500K ON users
  PROFILE clerk;

CREATE USER dcranney
  IDENTIFIED BY bedrock
  DEFAULT TABLESPACE users
  TEMPORARY TABLESPACE temp_ts
  QUOTA unlimited ON users;

CREATE USER userscott
  IDENTIFIED BY "scott1"
  PASSWORD_LIFETIME 60
  PASSWORD_GRACE_TIME 10;
```

```
SELECT username, profile, account_status from dba_users;
USERNAME          PROFILE          ACCOUNT_STATUS
-----
SYS                DEFAULT         OPEN
```

| | | |
|-----------|---------|--------|
| SYSTEM | DEFAULT | OPEN |
| BLAKE | DEFAULT | OPEN |
| SCOTT | DEFAULT | OPEN |
| ADAMS | DEFAULT | OPEN |
| JFEE | CLERK | OPEN |
| DCRANNEY | DEFAULT | OPEN |
| JONES | DEFAULT | OPEN |
| CLARK | DEFAULT | OPEN |
| USERSCOTT | DEFAULT | LOCKED |

```
SELECT * FROM sys.dba_ts_quotas;
TABLESPACE  USERNAME  BYTES  MAX_BYTES  BLOCKS  MAX_BLOCKS
-----
SYSTEM      SYSTEM    0      0          0       0
USER        JFEE      0      512000    0       250
USER        DCRANNEY  0      -1         0       -1
```

MAX_BYTES 가
“-1”

```
SELECT * FROM sys.dba_profiles
ORDER BY profile;
PROFILE      RESOURCE_NAME      RESOURCE  LIMIT
-----
DEFAULT     COMPOSITE_LIMIT    KERNEL     UNLIMITED
DEFAULT     SESSIONS_PER_USER  KERNEL     1
DEFAULT     CPU_PER_CALL       KERNEL     UNLIMITED
DEFAULT     LOGICAL_READS_PER_CALL  KERNEL     30
DEFAULT     CONNECT_TIME       KERNEL     600
DEFAULT     IDLE_TIME          KERNEL     UNLIMITED
DEFAULT     LOGICAL_READS_PER_SESSION  KERNEL     UNLIMITED
DEFAULT     CPU_PER_SESSION    KERNEL     UNLIMITED
DEFAULT     PRIVATE_SGA        KERNEL     UNLIMITED
DEFAULT     FAILED_LOGIN_ATTEMPTS  PASSWORD  UNLIMITED
DEFAULT     PASSWORD_LIFE_TIME  PASSWORD  UNLIMITED
DEFAULT     PASSWORD_REUSE_MAX  PASSWORD  UNLIMITED
```

```

DEFAULT      PASSWORD_LOCK_TIME      PASSWORD      UNLIMITED
DEFAULT      PASSWORD_GRACE_TIME      PASSWORD      UNLIMITED
DEFAULT      PASSWORD_VERIFY_FUNCTION  PASSWORD      UNLIMITED
DEFAULT      PASSWORD_REUSE_TIME      PASSWORD      UNLIMITED
PROF         COMPOSITE_LIMIT          KERNEL        DEFAULT
PROF         PRIVATE_SGA              KERNEL        DEFAULT
PROF         CONNECT_TIME             KERNEL        DEFAULT
PROF         IDLE_TIME              KERNEL        DEFAULT
PROF         LOGICAL_READS_PER_CALL  KERNEL        DEFAULT
PROF         LOGICAL_READS_PER_SESSION  KERNEL        DEFAULT
PROF         SESSIONS_PER_USER        KERNEL        DEFAULT
PROF         CPU_PER_CALL             KERNEL        DEFAULT
PROF         CPU_PER_SESSION          KERNEL        DEFAULT
PROF         FAILED_LOGIN_ATTEMPTS    PASSWORD      5
PROF         PASSWORD_LIFE_TIME        PASSWORD      60
PROF         PASSWORD_REUSE_MAX      PASSWORD      UNLIMITED
PROF         PASSWORD_LOCK_TIME        PASSWORD      1
PROF         PASSWORD_GRACE_TIME        PASSWORD      10
PROF         PASSWORD_VERIFY_FUNCTION  PASSWORD      UNLIMITED
PROF         PASSWORD_REUSE_TIME        PASSWORD      60
32 rows selected.

```

Oracle

```

SELECT username, value || 'bytes' "Current session memory"
  FROM v$session sess, v$sesstat stat, v$statname name
 WHERE sess.sid = stat.sid
       AND stat.statistic# = name.statistic#
       AND name.name = 'SESSION_MEMORY';

```

“Current session memory”

. PRIVATE_SGA

‘session memory’ ‘max session memory’

가 .

1. prof

```
CREATE PROFILE prof limit
  FAILED_LOGIN_ATTEMPTS 5
  PASSWORD_LIFE_TIME 60
  PASSWORD_REUSE_MAX 60
  PASSWORD_REUSE_TIME UNLIMITED
  PASSWORD_VERIFY_FUNCTION verify_function
  PASSWORD_LOCK_TIME 1
  PASSWORD_GRACE_TIME 10;
```

2. 가

```
CREATE USER userscott IDENTIFIED BY userscott PROFILE prof;
ORA-28003: Password verification for the specified password failed
ORA-20001: Password same as user
```

3. prof "scott1%" userscott

```
CREATE USER userscott IDENTIFIED BY "scott%" PROFILE prof;
```

4. "scott%"

```
ALTER USER userscott IDENTIFIED BY "scott%";
ORA-28007: The password cannot be reused
```

5.

```
ALTER USER userscott ACCOUNT LOCK;
```

6.

```
SELECT username, user_id, account_status, lock_date
  FROM dba_users
 WHERE username='USERSCOTT';
```

7.

```
ALTER USER userscott PASSWORD EXPIRE;
```

8.

```
SELECT username, user_id, account_status, expiry_date
FROM dba_users
WHERE username='USERSCOTT';
```

9.

```
ALTER USER userscott ACCOUNT UNLOCK;
```

10.

```
SELECT username, user_id, account_status, expiry_date
FROM dba_users
WHERE username='USERSCOTT';
```

:

23

22

Oracle

SQL

. Oracle

100가

가

가
UPDATE ANY TABLE, SELECT ANY TABLE, CREATE
ANY INDEX ANY 가 PUBLIC

:

. ANY 가

:

Oracle8i SQL

가

SYSDBA SYSOPER

, SELECT ANY TABLE

SQL*Plus

connect SYS/password
SQL*Plus

```
connect SYS/password as SYSDBA
connect SYS/password as SYSOPER
```

가 SYSDBA

SELECT_CATALOG_ROLE

SELECT

EXECUTE_CATALOG_ROLE

EXECUTE

DELETE_CATALOG_ROLE

AUD\$

가

: SYSDBA

: Oracle8i Reference

Oracle8i SQL

가

ALL ALL PRIVILEGES

GRANT

REVOKE

```
ALL
REVOKE ALL ( REFERENCES
)
REVOKE CASCADE CONSTRAINTS
```

가

: Oracle8i

```
SQL CREATE ROLE
CREATE ROLE
가
```

: 가

```
BICENTENNIAL
CLERK
```

```
CREATE ROLE clerk
IDENTIFIED BY bicentennial;
```

가

24-1
Oracle

가

가

24-1

| | |
|-----------------------------------|---|
| | |
| CONNECT ¹ | ALTER SESSION, CREATE CLUSTER, CREATE DATABASE LINK, CREATE SEQUENCE, CREATE SESSION, CREATE SYNONYM, CREATE TABLE, CREATE VIEW |
| CREATE TYPE ⁷ | CREATE TYPE, EXECUTE, EXECUTE ANY TYPE |
| RESOURCE ^{1,2} | CREATE CLUSTER, CREATE INDEXTYPE, CREATE OPERATOR, CREATE PROCEDURE, CREATE SEQUENCE, CREATE TABLE, CREATE TRIGGER, CREATE TYPE |
| DBA ^{1,3,4} | WITH ADMIN OPTION |
| EXP_FULL_DATABASE ⁵ | SELECT ANY TABLE, BACKUP ANY TABLE, INSERT, DELETE, AND UPDATE ON THE TABLES SYS.INCVID, SYS.INCFIL, AND SYS.INCEXP |
| IMP_FULL_DATABASE ⁵ | BECOME USER |
| DELETE_CATALOG_ROLE ⁶ | DELETE |
| EXECUTE_CATALOG_ROLE ⁶ | EXECUTE |
| SELECT_CATALOG_ROLE ⁶ | SELECT |

24-1 ()

| | |
|--|---|
| RECOVERY_CATALOG_OWNER ⁸ | DROP ROLE RECOVERY_CATALOG_OWNER, CREATE ROLE RECOVERY_CATALOG_OWNER CREATE TRIGGER, CREATE PROCEDURE TO RECOVERY_CATALOG_OWNER |
| HS_ADMIN_ROLE ⁹ | HS_EXTERNAL_OBJECT, HS_EXTERNAL_USER |
| AQ_USER_ROLE ¹⁰ | |
| AQ_ADMINISTRATOR_ROLE ¹⁰ | |
| SNMPAGENT ¹¹ | |
| ¹ SQL.BSQ ² RESOURCE UNLIMITED TABLESPACE . (UNLIMITED TABLESPACE RESOURCE 가 .) ³ DBA ADMIN OPTION UNLIMITED TABLESPACE . (ADMIN OPTION UNLIMITED TABLESPACE DBA 가 .) DBA UNLIMITED TABLESPACE ⁴ CATEXP.SQL EXP_FULL_DATABASE IMP_FULL_DATABASE ⁵ CATEXP.SQL ⁶ DBA ⁷ Oracle CREATE TYPE ⁸ CAT.SQL ⁹ CATQUEUE.SQL ¹⁰ ¹¹ Intelligent Agents | |

가

ALTER ANY ROLE ADMIN
 OPTION 가
 : Oracle8i Distributed Database System
 ms

SET ROLE

:

Oracle8i Reference

ACCTS_REC

가

CREATE ROLE role IDENTIFIED EXTERNALLY;

가

가

가

가

가

: 가

24-16

“

”

가 Net8

Net8

가

REMOTE_OS_ROLES TRUE

(FALSE .)

가

SQL ALTER ROLE

CLERK

ALTER ROLE clerk
IDENTIFIED EXTERNALLY;

SQL ALTER USER

: 23-15 “ ”

MAX_ENABLED_ROLES
ENABLED_ROLES

MAX_

가

PGA 가

4

가
MAX_ENABLED_ROLES

DROP ANY ROLE

ADMIN OPTION

SQL DROP ROLE

CLERK

DROP ROLE clerk;

SQL GRANT

OPTION 가

GRANT ANY ROLE

ADMIN

JWARD

ACCTS_PAY

GRANT create session, accts_pay
TO jward;

: GRANT

ADMIN

가 ADMIN OPTION
가 ADMIN
가 .

. (.)
ADMIN OPTION

가 MICHAEL NEW_DBA

GRANT new_dba TO michael WITH ADMIN OPTION;

MICHAEL NEW_DBA
NEW_DBA ,
ADMIN OPTION

SQL GRANT

가
가 GRANT OPTION

EMP SELECT, INSERT, DELETE
JFEE TSMITH

GRANT select, insert, delete ON emp TO jfee, tsmith;

JFEE TSMITH EMP ENAME JOB
INSERT .

GRANT insert(ename, job) ON emp TO jfee, tsmith;

JFEE SALARY
ALL .

GRANT ALL ON salary TO jfee;

: GRANT

GRANT OPTION

GRANT OPTION

GRANT OPTION

가 GRANT OPTION

가 CREATE VIEW CREATE ANY VIEW

가

GRANT OPTION

가

. Oracle

INSERT, UPDATE REFERENCES

| | | | |
|---|----------|---|----------|
| : | INSERT | | NOT NULL |
| | | | NOT NULL |
| | NOT NULL | 가 | NULL |
| 가 | | | |

SCOTT ACCOUNTS ACCT_NO INSERT

```
GRANT INSERT (acct_no)
ON accounts TO scott;
```

SQL REVOKE

ADMIN OPTION 가
가
GRANT ANY ROLE 가

TSMITH CREATE TABLE ACCTS_REC

```
REVOKE create table, accts_rec FROM tsmith;
```

```
: ADMIN OPTION
ADMIN OPTION
```

SQL REVOKE

```
, 가 JFEE TSMITH EMP SELE-
CT, INSERT
```

```
REVOKE select, insert ON emp
FROM jfee, tsmith;
```

```
DEPT HUMAN_RESOURCE
```

```
REVOKE ALL ON dept FROM human_resources;
```

```
: 가
가
GRANT OPTION
GRANT OPTION
```

```
INSERT, UPDATE, REFERENCES
REVOKE
```

```
, DEPT DEPTNO DNAME UPDATE
HUMAN_RESOURCES
```

DEPTNO UPDATE

REVOKE UPDATE ON dept FROM human_resources;
GRANT UPDATE (dname) ON dept TO human_resources;

REVOKE HUMAN_RESOURCES DEPT
UPDATE GRANT HUMAN_RESOURCES
DNAME UPDATE

REFERENCES

REFERENCES 가 ()
REVOKE CASCADE

CONSTRAINTS

REVOKE REFERENCES ON dept FROM jward CASCADE CONSTRAINTS;

REFERENCES CAS-
CADE CONSTRAINTS

가

DDL 가 ADMIN OPTION
가

1. JFEE CREATE TABLE ADMIN OPTI-
ON

2. JFEE가

3. JFEE가 TSMITH CREATE TABLE

4. TSMITH가

5. 가 JFEE CREATE TABLE

6. JFEE TSMITH CREATRE TABLE
가

DML

SELECT ANY TABLE

가

REVOKE

DML

DML

, TEST

EMP

SQL

EMP

SELECT

TEST

ALTER INDEX

ALTER INDEX DDL

INDEX

REFERENCES

REFERENCES

JWARD DEPT

DEPTNO

REFERENCES

DEPTNO

EMP

DEPTNO

DEPT

DEPTNO

REFERENCES

EMP

DEPTNO

REFERENCES

GRANT OPTION

, USER1

GRANT OPTION

SELECT

EMP

SELECT

USER2

USER2

USER1

SELECT

USER1

USER2

SELECT

PUBLIC

PUBLIC

가
가

PUBLIC

PUBLIC

가 PUBLIC 가 . PUBLIC
 PUBLIC SELECT ANY TABLE, UPDATE ON emp DML PUBLIC
 PUBLIC DML
 : 20-23 “ ”

가

, PUBLIC
 , PUBLIC SET ROLE

OS_ROLES=TRUE
 OS_ROLES=TRUE

가 GRANT REVOKE 가 가
 Oracle

Oracle
ADMIN OPTION

GRANT

Oracle8i Distributed Database Systems

Oracle
UNIX Oracle

UNIX

, MVS
RACF
VMS Oracle

GRANT

가

가

. 24-19

”

“

:

(Oracle 가 OS_ROLES TRUE
) 가

가

Oracle

(,

ADMIN OPTION 가)가

ORA_<ID>_<ROLE>[_[D][A]]
where:

ID

ID , VMS ID
MVS ID UNIX ID

ID

D

A

ADMIN OPTION

(
.)

: D A

가

ORA_PAYROLL_ROLE1
ORA_PAYROLL_ROLE2_A
ORA_PAYROLL_ROLE3_D
ORA_PAYROLL_ROLE4_DA

가 Oracle PAYROLL ROLE3 ROLE4
ROLE2 ROLE4 ADMIN OPTION

가

. OS 가

OS_ROLES=TR-

UE Oracle IDENTIFIED EXTERNALLY
OS

OS_ROLES=TRUE

OS_ROLES TRUE
. GRANT

: 가 ADMIN OPTION

OS_ROLES=TRUE

OS_ROLES TRUE 가 SET ROLE
. OS_ROLES = FALSE
GRANT SET ROLE (가 Oracle
.)
OS_ROLES = TRUE MAX_ENABLED_ROLES

가
가

가

REMOTE_OS_ROLES TRUE
F-
ALSE .)

.
ALL_COL_PRIVS, USER_COL_PRIVS, DBA_COL_PRIVS
ALL_COL_PRIVS_MADE, USER_COL_PRIVS_MADE
ALL_COL_PRIVS_RECD, USER_COL_PRIVS_RECD
ALL_TAB_PRIVS, USER_TAB_PRIVS, DBA_TAB_PRIVS
ALL_TAB_PRIVS_MADE, USER_TAB_PRIVS_MADE
ALL_TAB_PRIVS_RECD, USER_TAB_PRIVS_RECD
DBA_ROLES
USER_ROLE_PRIVS, DBA_ROLE_PRIVS
USER_SYS_PRIVS, DBA_SYS_PRIVS
COLUMN_PRIVILEGES
ROLE_ROLE_PRIVS, ROLE_SYS_PRIVS, ROLE_TAB_PRIVS
SESSION_PRIVS, SESSION_ROLES

: Oracle8i Reference

.
:
.
.
CREATE ROLE security_admin IDENTIFIED BY honcho;
GRANT create profile, alter profile, drop profile,
create role, drop any role, grant any role, audit any,
audit system, create user, become user, alter user, drop user
TO security_admin WITH ADMIN OPTION;
GRANT SELECT, DELETE ON sys.aud\$ TO security_admin;
GRANT security_admin, create session TO swilliams;
GRANT security_admin TO system_administrator;
GRANT create session TO jward;

```
GRANT SELECT, DELETE ON emp TO jward;
```

```
GRANT INSERT (ename, job) ON emp TO swilliams, jward;
```

```
SELECT * FROM sys.dba_sys_privs;
```

| GRANTEE | PRIVILEGE | ADM |
|----------------|----------------|-----|
| SECURITY_ADMIN | ALTER PROFILE | YES |
| SECURITY_ADMIN | ALTER USER | YES |
| SECURITY_ADMIN | AUDIT ANY | YES |
| SECURITY_ADMIN | AUDIT SYSTEM | YES |
| SECURITY_ADMIN | BECOME USER | YES |
| SECURITY_ADMIN | CREATE PROFILE | YES |
| SECURITY_ADMIN | CREATE ROLE | YES |
| SECURITY_ADMIN | CREATE USER | YES |
| SECURITY_ADMIN | DROP ANY ROLE | YES |
| SECURITY_ADMIN | DROP PROFILE | YES |
| SECURITY_ADMIN | DROP USER | YES |
| SECURITY_ADMIN | GRANT ANY ROLE | YES |
| SWILLIAMS | CREATE SESSION | NO |
| JWARD | CREATE SESSION | NO |

```
SELECT * FROM sys.dba_role_privs;
```

| GRANTEE | GRANTED_ROLE | ADM |
|-----------|----------------|-----|
| SWILLIAMS | SECURITY_ADMIN | NO |

```
)
```

```
SELECT table_name, privilege, grantable FROM sys.dba_tab_privs  
WHERE grantee= 'JWARD';
```

| TABLE_NAME | PRIVILEGE | GRANTABLE |
|------------|-----------|-----------|
| EMP | SELECT | NO |

EMP DELETE NO

```
SELECT grantee, table_name, column_name, privilege
       FROM sys.dba_col_privs;
```

| GRANTEE | TABLE_NAME | COLUMN_NAME | PRIVILEGE |
|-----------|------------|-------------|-----------|
| SWILLIAMS | EMP | ENAME | INSERT |
| SWILLIAMS | EMP | JOB | INSERT |
| JWARD | EMP | NAME | INSERT |
| JWARD | EMP | JOB | INSERT |

```
SELECT * FROM session_roles;
```

```
SWILLIAMS가 SECURITY_ADMIN 가  
Oracle
```

```
ROLE
```

```
-----  
SECURITY_ADMIN
```

```
SELECT * FROM session_privs;
```

```
SWILLIAMS가 SECURITY_ADMIN 가  
Oracle
```

```
PRIVILEGE
```

```
-----  
AUDIT SYSTEM  
CREATE SESSION  
CREATE USER  
BECOME USER  
ALTER USER  
DROP USER  
CREATE ROLE  
DROP ANY ROLE  
GRANT ANY ROLE  
AUDIT ANY  
CREATE PROFILE  
ALTER PROFILE  
DROP PROFILE
```

```
SWILLIAMS SECURITY_ADMIN  
CREATE SESSION
```

```
DBA_ROLES
```

```
SELECT * FROM sys.dba_roles;
```

| ROLE | PASSWORD |
|----------------|----------|
| CONNECT | NO |
| RESOURCE | NO |
| DBA | NO |
| SECURITY_ADMIN | YES |

ROLE_ROLE_PRIVS, ROLE_SYS_PRIVS ROLE_TAB_PRIVS
 가 .

, SYSTEM_ADMIN .

```
SELECT granted_role, admin_option
       FROM role_role_privs
       WHERE role = 'SYSTEM_ADMIN';
```

| GRANTED_ROLE | ADM |
|----------------|-----|
| SECURITY_ADMIN | NO |

SECURITY_ADMIN

```
SELECT * FROM role_sys_privs WHERE role = 'SECURITY_ADMIN';
```

| ROLE | PRIVILEGE | ADM |
|----------------|----------------|-----|
| SECURITY_ADMIN | ALTER PROFILE | YES |
| SECURITY_ADMIN | ALTER USER | YES |
| SECURITY_ADMIN | AUDIT ANY | YES |
| SECURITY_ADMIN | AUDIT SYSTEM | YES |
| SECURITY_ADMIN | BECOME USER | YES |
| SECURITY_ADMIN | CREATE PROFILE | YES |
| SECURITY_ADMIN | CREATE ROLE | YES |
| SECURITY_ADMIN | CREATE USER | YES |
| SECURITY_ADMIN | DROP ANY ROLE | YES |
| SECURITY_ADMIN | DROP PROFILE | YES |
| SECURITY_ADMIN | DROP USER | YES |
| SECURITY_ADMIN | GRANT ANY ROLE | YES |

SECURITY_ADMIN

```
SELECT table_name, privilege FROM role_tab_privs
       WHERE role = 'SECURITY_ADMIN';
```

| TABLE_NAME | PRIVILEGE |
|------------|-----------|
| AUD\$ | DELETE |
| AUD\$ | SELECT |



Oracle

SYS.AUD\$

가

Oracle Reports

Oracle

Oracle

가

가

:

가

가



가 . . . ,
가 . . .

가 . . .

SYSTEM . . .

가 . . .

가, . . .

25-16

“ ”

가

(SYS.AUD\$)

가

CATALOG.SQL

SYS

CATAUDIT.SQL

STMT_AUDIT_OPTION_MAP

AUDIT_ACTIONS

ALL_DEF_AUDIT_OPTS

DBA_STMT_AUDIT_OPTS

USER_OBJ_AUDIT_OPTS, DBA_OBJ_AUDIT_OPTS

USER_AUDIT_TRAIL, DBA_AUDIT_TRAIL

USER_AUDIT_SESSION, DBA_AUDIT_SESSION
USER_AUDIT_STATEMENT, DBA_AUDIT_STATEMENT
USER_AUDIT_OBJECT, DBA_AUDIT_OBJECT
DBA_AUDIT_EXISTS
USER_AUDIT_SESSION, DBA_AUDIT_SESSION
USER_TAB_AUDIT_OPTS

: Oracle8i Reference
25-17 “ ”

CATNOAUD.SQL 가 SYS
CATNOAUD.SQL

가

가 가



PRIVILEGE_MAP

. AUDIT_ACTIONS

. SYSTEM_

Oracle

0

Oracle

OS

가

OS

가

OS

SYSOPER

SYSDBA

Oracle

OS

가

가

Oracle

Oracle

가

()

, UPDATE

DML

Oracle 가

SQL CREATE, TRUNCATE, DROP T-
ABLE . (.)
CREATE TABLE
EMP ALTER TABLE

: 25-20 “

AUDIT NOAUDIT
SQL

Oracle8i

가

AUDIT NOAUDIT
가
Oracle8i SQL

SESSION CONNECT

가

: Oracle8i SQL 가

ANY TABLE , DELETE
DELETE ANY TABLE

AUDIT DELETE ANY TABLE
BY ACCESS
WHENEVER NOT SUCCESSFUL;

Oracle 24-2 “ ”

Oracle8i SQL

가
ALL
AUDIT NOAUDIT

SQL AUDIT , SQL AUDIT AUDIT SYSTEM
SQL AUDIT
AUDIT ANY
BY
proxy

WHENEVER SUCCESSFUL/WHENEVER NOT SUCCESSFUL
BY SESSION/BY ACCESS

: AUDIT

AUDIT_TRAIL

: AUDIT

Oracle8i SQL

25-13

BY

SESSION

AUDIT SESSION;

AUDIT SESSION
BY scott, lori;

DELETE ANY TABLE

AUDIT DELETE ANY TABLE;

PROCEDURE

SELECT, INSERT, DELETE

EXECUTE

AUDIT SELECT TABLE, INSERT TABLE, DELETE TABLE,
EXECUTE PROCEDURE
BY ACCESS
WHENEVER NOT SUCCESSFUL;

AUDIT SYSTEM

BY SESSION SCOTT.EMP
DELETE

AUDIT DELETE ON scott.emp;

JWARD가 DEPT BY ACCESS
SELECT, INSERT, DELETE

AUDIT SELECT, INSERT, DELETE
ON jward.dept
BY ACCESS
WHENEVER SUCCESSFUL;

SELECT BY SESSION

AUDIT SELECT
ON DEFAULT
WHENEVER NOT SUCCESSFUL;

AUDIT ANY

NOAUDIT Oracle NOAUDIT
, NOAUDIT , BY USER

NOAUDIT WHENEVER
. WHENEVER 가

BY SESSION/BY ACCESS

NOAUDIT
NOAUDIT

가

: NOAUDIT

AUDIT_TRAIL

: NOAUDIT

Oracle8i SQL

25-13

“

”

```
NOAUDIT session;
NOAUDIT session BY scott, lori;
NOAUDIT DELETE ANY TABLE;
NOAUDIT SELECT TABLE, INSERT TABLE, DELETE TABLE,
EXECUTE PROCEDURE;
```

()

```
NOAUDIT ALL;
NOAUDIT ALL PRIVILEGES;
```

AUDIT SYSTEM

```
NOAUDIT DELETE
ON emp;
NOAUDIT SELECT, INSERT, DELETE
ON jward.dept;
```

EMP

```
NOAUDIT ALL
```

ON emp;

NOAUDIT ALL
ON DEFAULT;

NOAUDIT
NOAUDIT

AUDIT ANY

가

Oracle

가

AUDIT_TRAIL

DB

가

OS

가

NONE

(.)

가 SYS.AUD\$
SYS.AUD\$ INITIAL

SYSAUD\$

Oracle8i Reference

가

DELETE FROM sys.aud\$;

EMP

DELETE FROM sys.aud\$
WHERE obj\$name='EMP';

sys.aud\$... ” (, “INSERT INTO table SELECT ...FROM
)

SYSAUD\$ SYS DELETE ANY TABLE SYS가
DELETE

: (, SESSION
)
SYS (SYS가
)

: Oracle8i Utilities

1.
EXPORT
2.
3. TRUNCATE SYS.AUD\$
4. 1
SYS.AUD\$

| | |
|-------------|-----|
| : SYS.AUD\$ | SYS |
|-------------|-----|

DELETE ANY TABLE

AUDIT INSERT, UPDATE, DELETE
ON sys.aud\$
BY ACCESS;

SYS.AUD\$

가

SWILLIAMS

```
LOCK TABLE scott.emp IN EXCLUSIVE MODE;
DELETE FROM scott.emp WHERE mgr = 7698;
ALTER TABLE scott.emp ALLOCATE EXTENT (SIZE 100K);
CREATE INDEX scott.ename_index ON scott.emp (ename);
CREATE PROCEDURE scott.fire_employee (empid NUMBER) AS
BEGIN
    DELETE FROM scott.emp WHERE empno = empid;
END;
/

EXECUTE scott.fire_employee(7902);
```

```
SELECT * FROM sys.dba_stmt_audit_opts;
```

| USER_NAME | AUDIT_OPTION | SUCCESS | FAILURE |
|-----------|--------------|------------|------------|
| JWARD | SESSION | BY SESSION | BY SESSION |
| SWILLIAMS | SESSION | BY SESSION | BY SESSION |
| | LOCK TABLE | BY ACCESS | NOT SET |

BY SESSION BY ACCESS

```
SELECT * FROM sys.dba_priv_audit_opts;
```

| USER_NAME | PRIVILEGE | SUCCESS | FAILURE |
|------------|------------|------------|---------|
| ALTER USER | BY SESSION | BY SESSION | |

AUDIT SESSION

AUDIT SESSION

```
SELECT username, logoff_time, logoff_lread, logoff_pread,  
       logoff_lwrite, logoff_dlock  
FROM sys.dba_audit_session;
```

| USERNAME | LOGOFF_TI | LOGOFF_LRE | LOGOFF_PRE | LOGOFF_LWR | LOGOFF_DLO |
|-----------|-----------|------------|------------|------------|------------|
| JWARD | 02-AUG-91 | 53 | 2 | 24 | 0 |
| SWILLIAMS | 02-AUG-91 | 3337 | 256 | 630 | 0 |

Oracle

. AUDIT

가

: 가
Oracle AUDIT

DML DDL

Oracle

Oracle

가

(BY SESSION)

(BY ACCESS)

가

. AFTER

AFTER

AFTER

AFTER

SQL

EMP

```
CREATE TRIGGER audit_employee
AFTER INSERT OR DELETE OR UPDATE ON emp
FOR EACH ROW
BEGIN
/* AUDITPACKAGE is a package with a public package
variable REASON. REASON could be set by the
application by a command such as EXECUTE
AUDITPACKAGE.SET_REASON(reason_string). Note that a
package variable has state for the duration of a
session and that each session has separate copy of
all package variables. */
IF auditpackage.reason IS NULL THEN
raise_application_error(-20201, 'Must specify reason with ',
```

```

'AUDITPACKAGE.SET_REASON(reason_string)');
END IF;

/* If the above conditional evaluates to TRUE, the
user-specified error number and message is raised,
the trigger stops execution, and the effects of the
triggering statement are rolled back. Otherwise, a
new row is inserted into the pre-defined auditing
table named AUDIT_EMPLOYEE containing the existing
and new values of the EMP table and the reason code
defined by REASON variable of AUDITPACKAGE. Note
that the "old" values are NULL if triggering
statement is an INSERT and the "new" values are NULL
if the triggering statement is a DELETE. */
INSERT INTO audit_employee VALUES
(:old.ssn, :old.name, :old.job_classification, :old.sal,
:new.ssn, :new.name, :new.job_classification, :new.sal,
auditpackage.reason, user, sysdate );
END;

```

NULL

AFTER

NULL

```

CREATE TRIGGER audit_employee_reset
AFTER INSERT OR DELETE OR UPDATE ON emp
BEGIN
auditpackage.set_reason(NULL);
END;

```

SQL

AFTER
AFTER

A

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